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HARD RED SPRING WHEAT



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QUALITY REPORT

Physical, Chemical, Milling, and Baking Characteristics

1965 CROP

UNITED STATES DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
CROPS RESEARCH DIVISION

UNITED STATES DEPARTMENT OF AGRICULTURE
 Agricultural Research Service
 Crops Research Division

Preliminary Report Not For Publication 1/

REPORT OF PHYSICAL, CHEMICAL, MILLING, AND BAKING EXPERIMENTS
 WITH HARD RED SPRING WHEAT

1965 CROP 2/

by

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1/ This is a progress report of cooperative investigations containing data, the interpretation of which may be modified with additional experimentation. Therefore, publication, display, or distribution of any data or any statements herein should not be made without prior written approval of the Crops Research Division, Agricultural Research Service, United States Department of Agriculture and the cooperating agency or agencies concerned.

2/ Investigations of the Crops Research Division, Agricultural Research Service, in cooperation with the North Dakota Agricultural Experiment Station. The samples were obtained from the cooperative experiments with the State Agricultural Experiment Stations in the spring wheat region.

COOPERATING AGENCIES, STATIONS, AND PERSONNEL

The cooperating agencies and stations conducting the varietal plot and nursery experiments from which the 1965 spring wheat samples were received were as follows:

Colorado Agricultural Experiment Station:

Fort Collins.

Minnesota Agricultural Experiment Station:

Crookston, Morris, and St. Paul.

Montana Agricultural Experiment Station:

Bozeman, Cutbank, Dutton, Havre, and Sidney.

North Dakota Agricultural Experiment Station:

Casselton, Dickinson, Fargo, Minot, and Williston.

South Dakota Agricultural Experiment Station:

Highmore, and Watertown.

Wisconsin Agricultural Experiment Station:

Madison.

Wyoming Agricultural Experiment Station:

Laramie, and Sheridan.

A complete list of all cooperating agencies, stations, and personnel for the year will be found in the report by Dr. K. L. Lebsack, "Results on Spring Wheat Varieties grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1965."

INTRODUCTION

Samples of standard varieties and many of the new strains of hard red spring wheat grown in cooperative experiments in the spring wheat region of the United States ^{3/} have been milled each year by the USDA. The flours were assayed chemically and physically and baked into bread to determine the quality characteristics. The purpose of this report is to make available to the cooperators, quality data on the standard varieties and new strains of hard red spring wheat from the 1965 crop.

The same general format and techniques were used in evaluating the wheats as were given in the quality reports of the past 3 years. The data contained in this report are comparable to data in past reports, and where applicable average results and also the average results of the 1964 crop are compared.

The new format adopted for the 1962 crop report uses the three categories: kernel characteristics, milling performance, and baking evaluation; only the deficiencies which may be apparent for the varieties, or outstanding characteristics, are given for sake of brevity. An additional column of General Evaluation has been added to the Uniform Regional Nursery Averages table giving the over-all performance of the variety for the sample submitted. It is hoped that with the use of this format one can quickly ascertain the various characteristics of the sample and any outstanding features or deficiencies which are apparent. Again, for physical characteristics, the mixogram data are given with no specific comments made regarding the patterns, since reference mixograms for each of the general types are presented at the end of the report.

Although the crop was harvested under adverse conditions, such as high moisture, especially in the northern section of the area, the milling results on an average for the Uniform Regional Nursery samples were better than last year. This was characteristic of the entire crop, therefore, extractions were generally higher than last year (approximately 1%) with much lower mineral content in the flour. However, the Field Plot samples were approximately the same to slightly poorer than last year.

The oxidation requirements for the 1965 crop were generally the same as the 1964 crop, requiring 5 p.p.m. bromate.

In previous reports, Advanced, Preliminary, and Yield Nursery samples as well as Special samples were included in the report. Since this

^{3/} Lebsack, K. L., "Results on Spring Wheat Varieties Grown in Cooperative Plot and Nursery Experiments in the Spring Wheat Region in 1965." USDA, Agricultural Research Service, Crops Research Division.

information is of primary interest only to those persons submitting the samples, they have been omitted from the report this year. Only those samples (Field Plot, Uniform Regional Nursery and Sawfly Yield Nursery) which are of regional interest are included.

SOURCE OF THE SAMPLES

Tests were performed on 596 samples received from field plots, uniform regional nursery, and sawfly nursery of the 1965 crop. These samples originated in seven states: Colorado, Minnesota, Montana, North Dakota, South Dakota, Wisconsin, and Wyoming. Nineteen stations from these states were represented, namely, Fort Collins in Colorado; Crookston, Morris, and St. Paul in Minnesota; Cutbank, Bozeman, Dutton, Havre, and Sidney in Montana; Casselton, Dickinson, Fargo, Minot, and Williston in North Dakota; Highmore and Watertown in South Dakota; Madison in Wisconsin; and Laramie and Sheridan in Wyoming.

A limited number of samples were blended this year. Only those samples from adjacent areas which had characteristics which were compatible were blended. The uniform regional nursery samples blended were the Morris and St. Paul samples, and the Williston and Sidney samples. Care was taken in choosing the samples for blending such that no extreme differences were apparent in the characteristics of the wheats, and protein contents were comparable. The samples blended were carefully selected to eliminate the effect blending could have when extreme differences exist between samples which would give erroneous results. After blending, the total number of samples milled and baked was 536.

On page 6 are listed the spring wheats which were included in the uniform regional nursery 1965 trials. The variety or cross, the station which developed the variety, the state selection number and the C.I. number are given.

The Laramie, Wyoming Uniform Regional Nursery samples (Table 19) were badly frost damaged. These samples were not rated and were only included in the report to show the effect frost damage can have on the milling and baking performance.

In Table 21 are given the average data for the Uniform Regional Nursery samples. The data for kernel characteristics, milling performance, and mixograms are arithmetical averages of the individual samples. However, the baking performances were obtained from blends of equal proportions of the individual flours from the 14 series of stations, excluding the Laramie, Wyoming samples.

Variety or Cross	Included by	Station Developing	State or Sel. No.	C.I. No.
Marquis				3641
Thatcher				10003
Selkirk				13100
Lee				12488
Pembina	Canada	Winnipeg	CT 229	13332
Crim	Minn.	St. Paul	II-53-404	13465
Justin	N. Dak.	Fargo	ND 102	13462
Chris	Minn.	St. Paul	II-53-525-1	13751
RL 4125 x Tc ⁶ - Sr ⁶	Canada	Winnipeg	RL 4159	13775
II-50-17 x Pilot	Montana	Bozeman	B61-95	13586
II-50-17 x Pilot	"	"	B60-82	13823
Kenya 338 x Lee	"	"	B61-89	13946
II-50-17 x Rushmore	Minn.	St. Paul	II-54-30	13655
M2854 ² x II-50-72	"	"	II-55-11	13773
ND81-III-58-2 x II-53-546	"	"	II-58-57	13825
Crim x II-53-521	"	"	II-59-9	13826
51-3549 x II-50-17	N. Dak.	Fargo	60-54	13596
(II-50-17 x 51-2688) ND4-Rsc	"	"	61-107	13937
Unknown	S. Dak.	Brookings	SD-624	13947
Unknown	"	"	SD-625	13948
Unknown	"	"	SD-626	13949
ND138 x (Lee x FPI 186035)	N. Dak.	Fargo	ND 264	13569
Cly x (Lee x FPI 186035)	"	"	ND 405	13779
Justin x ND 81	"	"	ND 363	13828
ND 42 x Justin	"	"	ND 321	13952
MEET x Cly ² - ND 81	"	"	ND 407	13953
Jtn x Cly ² - (N ² - MYGU)	"	"	ND 442	13954
N2350 ² x (Rmr - KF x Ns3880)	"	"	ND 455	13955
Jtn x ND 152	"	"	ND 456	13956
Jtn x ND 228	"	"	ND 457	13957

METHODS

Briefly, the following methods and terminologies were applied:

Test Weight Per Bushel - The weight per Winchester bushel of cleaned, dry, scoured wheat. To determine the dockage-free test weight on a comparable sample, approximately one pound per bushel should be subtracted from the value given.

1000 Kernel Weight - The 1000 kernel weight was determined by counting the number of kernels in a 10 gram sample of cleaned, picked wheat with an ASCO seed counter 4/.

Kernel Size - The percentages of the size of the kernels (large, medium, and small) were determined on a wheat sizer as described by Shuey 5/.

The sieves of the sizer were clothed as follows:

Top Sieve - Tyler #7 with 2.92 mm. opening.
 Middle Sieve - Tyler #9 with 2.24 mm. opening.
 Bottom Sieve - Tyler #12 with 1.65 mm. opening.

Potential Yield - The potential yield was determined by multiplying the percentages of the overs of each sieve #7, #9, and #12, by the value of 78%, 73%, and 68%, respectively. The accumulation percentage is given as the potential yield.

Milling - The samples were cleaned by passing the wheat over an Emerson Kicker and Dockage Tester and through a modified Forster Scourer Model 6 4/. The clean dry samples were pre-tempered to 12% moisture for at least 72 hours; then tempered to 16% moisture and allowed to stand overnight prior to milling.

All samples except the field plot samples were milled on a Brabender Quadrumat Junior Mill 4/. The mill was equipped with a #18 wire on the drum sieve. The throughs of the #18 wire were rebolted on a Strand sifter equipped with a #60 Tyler sieve. The sample was sifted for 1 minute. The throughs of the #60 wire were classified as flour and this was the material tested.

The field plot samples were milled on a Buhler Continuous Experimental Mill. This mill has been slightly modified to give results more comparable to commercial milling. The break scalping sieves were clothed with #54 stainless steel wire, the reduction scalping sieves with #58, #66, and #105 stainless steel wires for the first, second and third reduction, respectively. All of the flour sieves were clothed with #135 stainless steel wire.

4/ Mention of a trade product, equipment or a commercial company in this publication does not imply its endorsement by the United States Department of Agriculture over similar products or companies not named.

5/ Shuey, William C. A wheat sizing technique for predicting flour milling yield. Cereal Science Today 5:71-72,75. 1960.

All 6 flour streams were combined to give the patent flour. The extraction of a good milling wheat using this flow is approximately 68%. This is comparable to a commercial "long patent" extraction flour. At this flour extraction of the wheat, the changes in flour ash are most sensitive to changes in percent extraction.

Protein Content - The protein was calculated by multiplying the factor of 5.7 times the percent nitrogen as determined by the standard Kjeldahl procedure.

Mineral Content or Ash Content - This was determined by measuring the residue of the minerals left after incinerating the sample for approximately 16 hours at 565° C. The results were reported as percentage of the sample which was incinerated.

Mixogram - The mixogram was determined by using 30 g. of flour and adding 20 cc. of water. The sensitivity spring setting was set at 10. All mixograms were run with constant weight of flour and volume of water. Absorptions reported were adjusted according to the height of the mixogram. The correction factor was determined from a series of flours by varying the amount of absorption.

Mixogram Pattern - The reference mixogram patterns given at the end of the report demonstrate the different types of mixograms which were obtained. A single number is assigned each pattern to characterize and simplify the classification of the curves, the larger number indicating stronger curve characteristics.

Baking Procedure or Formula - The baking formula used was as follows:

100% flour	3% milk D.S.M.
2% salt	3% yeast
5% sugar	2% shortening (Crisco, melted)

The sample was mixed to development in a National Manufacturing mixer 4/, for the 25 g. sample the Micro mixer, for the 100 g. sample the 100 g. special mixer size.

Absorption - This was the water, expressed as percent of the flour, required to bring the dough to proper consistency.

Crumb Color - This value was determined by comparing the loaf of the tested sample against a baking standard. This standard was selected as an average for the crop year for the spring wheat area.

Loaf Volume - This was volume of the baked loaf as determined by seed displacement.

All values (Protein, Ash, and Absorption) were reported on a 14% moisture basis.

DISCUSSION

The following discussion presents some of the basis for the techniques and criteria used in evaluating the samples. There are four major evaluation categories used: Kernel characteristics, to characterize the kernel; milling performance, to evaluate the general milling characteristics; mixogram patterns, to classify the flour as to type; and baking evaluation, to rate the flour as to over-all baking.

Each evaluation category can be important. A sample could be of a sufficiently poor quality for a given category to eliminate it from possible future testing. However, a sample submitted for the first time and found to be questionable should be tested again to establish if it has a desirable or undesirable classification. A sample which is consistently rated as questionable should be discarded.

All samples, as in previous years, are compared to a milling and baking standard which represents a blend of the crop year blended to a known quality. However, unlike previous years, the samples for the individual stations were evaluated against the average results of the varieties Chris, Crim, Justin, and Selkirk from the respective stations. Therefore, the evaluation ratings of one station are not directly comparable to those of another station. When comparing results of two or more stations, the individual items of data must be compared since in an over-all spring wheat producing area evaluation certain locations could have all samples, even the named varieties, classified as questionable to unsatisfactory due to the agronomic and climatic conditions of the individual locations.

An area may produce low protein wheats which give large and plump kernels, good milling, and kernel characteristics, but low protein, and unsatisfactory baking properties such as short mixing time, low loaf volume, and weak dough characteristics. The wheat from this area could not be considered as a strong spring wheat, and would not maintain the quality of the spring wheat producing area. A good variety should have tolerance to a wide range of environmental conditions and the over-all picture taken into consideration for establishing these varieties.

A sample rated as satisfactory to questionable has only a very minor fault; however, if it is questionable to satisfactory, the fault is more serious, but in either case the fault is not sufficient to be considered as detrimental. For questionable to unsatisfactory, and unsatisfactory to questionable, the faults are much more serious and the sample would have little future promise of being accepted if such faults are consistent.

When more than one of the factors are below the standard, the variety is marked as questionable or unsatisfactory. If sufficient data accumulated over a two- or three-year period show a definite deficiency, the variety should be discarded. If a major fault is found, the variety is undesirable and should be discarded.

Kernel Characteristics are important in determining the initial value of the wheat and, if extremely poor, could disqualify a new variety from further consideration. Because of the present grading system, it is desirable to have a good test weight. If a sample has a low 1000 kernel weight and small kernel size distribution, it would be considered a poor sample for milling because of the high ratio of bran to endosperm. Therefore, it is desirous to have plump kernels. Wheat ash is an important factor when comparing a variety against other standard varieties. If a sample would have consistently higher wheat mineral content, it would enhance the probability of having high flour ash. Low protein would not be desirous when comparing with standard varieties, because in a low protein crop year the probability of it having such a low protein as to be undesirable is very probable. Therefore, the protein must also be considered as a characteristic when comparing other varieties grown in the same locality.

Milling Performance is very important, especially the sub-category of milling characteristics. If low extractions or high flour ash are obtained, this becomes a major factor and is quite unacceptable from a commercial milling standpoint. All flour mineral contents are reported at a constant extraction of 65% so that the figures are directly comparable. As a rule of thumb, one can approximate that each point of ash (0.01%) is equivalent to approximately 2% in extraction.

Milling characteristics are important. A sample which tends to be soft in character requires a different milling technique to be milled properly. On commercial mills flowed for hard vitreous spring wheats, soft milling characteristics cause great difficulty. Therefore, if a sample shows softness in character, it is considered to be undesirable. Likewise, a sample which is extremely hard and vitreous will cause difficulty. Both types of wheat (soft or vitreous) require different roll pressures, clothing, sifter surface, and temper to be milled properly. If these wheats are blended with normal milling wheats, improper results are obtained, since these characteristics are not necessarily compatible or additive. Normal to soft score indicates that the sample shows a tendency toward softness of character on the flour mill stocks and extraction. This would indicate that the sample may give some difficulty for certain mill streams and an adjustment would either have to be made in the milling flow, or in tempering procedures to compensate for these differences. The properties of this wheat may or may not be compatible with other wheats with which it may be blended, therefore, it is important to maintain varieties with as uniform milling characteristics as possible.

The amount of protein recovered in the flour for a sample is of importance. The high protein wheats yielding low protein flours are not desirable. Such a wheat would have much of the protein distributed in the outer portion of the kernel which would result in excessive protein in the feed. Therefore, higher protein in the wheat would be necessary to yield a flour of comparable protein to a wheat which gives good flour protein recovery.

Mixogram Patterns and Farinogram Patterns are important in estimating the strength and mixing tolerance or potential mixing tolerance of a flour. A long flat curve is more desirable than a short peaked curve; however, an extremely long curve may be undesirable, since the flour would require excessive mixing to develop. The pattern of the curve is of importance as well as the length, and both must be considered.

Baking Evaluation takes into account the flour absorption, mixing time, dough characteristics, loaf volume and machinability. A sample which has low absorption would be unsatisfactory, compared to other spring wheats with normal absorption. A sample with extremely short mixing time would also be considered undesirable as a good strong spring wheat. When a sample is in the minimal range for these values, it is considered as questionable until further testing demonstrates whether a definite deficiency exists.

Doughs having mellow to weak dough properties show a tendency towards weakness. Also, for mellow to strong, the dough is mellow, but has a tendency to be strong, and a strong to mellow dough is just the reverse. Since these characteristics are subjective rather than objective, it is necessary at times to estimate the tendency; therefore, the necessity exists for apparent double grades.

The grain or appearance of the interior of the loaf shows how well the sample stood up during baking and may point out or explain some deficiencies which have been observed during the baking test.

Loaf volume indicates potential strength of the flour in a different manner than mixing time or dough characteristics, in that it shows the ability or lack thereof of the dough to expand under pressure and to contain the entrapped gases during this expansion. Weak flours act much like rotten balloons which burst when blown up and collapse, thus yielding low loaf volume or extremely large volume and large holes in the interior of the loaf. Low protein flours and lifeless (dead) doughs exhibit the properties similar to putty and do not expand during fermentation or baking and give low loaf volume. Tough and very bucky doughs are bound too tight and impede expansion of the gases causing low loaf volume.

General Evaluation rating is given for varieties which have been tested at least for two crop years. This evaluation takes into account the various grading factors and the results of the crop years as an over-all rating. The main defects and outstanding features are discussed. A variety which shows some promise with outstanding agronomic characteristics should be seriously considered and looked at in large plots, if it has not been previously, providing other sufficient information has been obtained. A sample which shows little promise should be discontinued.

FIELD PLOT NURSERY SAMPLES - 1965 CROP

Sixty-eight field plot nursery samples were received from 3 states and 5 stations. The data for the individual samples are given in Tables 1 through 5. In Table 6 are given the averages for the variety by state for the following varieties: Chris, Crim, Justin, and Selkirk, with the exception of Justin for the Fort Collins samples. The averages for these commercial varieties per location were used as a standard for judging the other samples in the field plots. The 1964 and 1965 averages also are given for these varieties for each of the states where the data is available. For the Colorado series, the Southwest Colorado samples were not included in the averages.

COLORADO SAMPLES

Twenty-two samples were received from two Colorado areas: Fort Collins and Southwest Colorado. Fifteen of these samples were commercial, named varieties; Canthatch, Chris, Crim, Lee, Lemhi 53, Manitou, Marquis, Saunders, Selkirk, and Thatcher. Five of these samples were unnamed varieties; Wisc. 255, B61-88, ND 229-1, B61-95, and ND 60-54. The results for each of these varieties for the individual stations are given in Tables 1 and 2. All of the Fort Collins samples generally exhibited weak dough characteristics and low absorptions. The Selkirk variety from Fort Collins had to be rated as unsatisfactory because of the very weak dough characteristics and minimum mixing time for baking evaluation, although it was included in the average results for the area.

The Fort Collins samples averaged slightly higher protein than the Southwest Colorado samples and the over-all baking evaluation was slightly better, probably due to the reflection of higher protein giving better grain and volume.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

B61-88 (C.I. 13772)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

ND 229-1 (C.I. 13589)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

B61-95 (C.I. 13586)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

NOTE: The sample from Southwest Colorado had very satisfactory kernel characteristics; however, the milling performance was satisfactory to questionable because of the tendency to show soft milling characteristics, no doubt due primarily to the low protein and large kernel size of the sample. This low protein was also reflected in the final baking evaluation score of unsatisfactory to questionable, as the sample exhibited dead dough and had minimum grain in the crumb and minimum loaf volume.

ND 60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

NOTE: The sample from Southwest Colorado also had satisfactory kernel characteristics and, again, the milling performance was satisfactory to questionable probably due in some respect to the lower protein. There is only a slight difference in the proteins but at this percentage of protein the kernel characteristics would tend to change and begin to exhibit the influence of protein change. The baking performance is questionable and was one of the weaker doughs of the series from this station.

NORTH DAKOTA SAMPLES

Thirty-seven samples were received from 2 North Dakota stations: Dickinson and Williston. Twenty-five of these samples were name varieties of Canthatch, Chinook, Chris, Crim, Forx, Justin, Lee,

Manitou, Nordman, Pembina, Plainsman, Rescue, Selkirk, and Thatcher. Twelve of the samples were the unnamed varieties: Minnesota Sel. II-54-30, B61-95, ND 60-54, ND 264, ND 405, and ND 407. The average results of Chris, Crim, Justin, and Selkirk for the individual stations were used to judge the performance of the other samples from the respective stations. The results for each of these varieties, for the individual stations, are given in Tables 3 and 4. The unnamed varieties, on the whole, from Dickinson did not perform as well in baking evaluation as the samples from Williston.

II-54-30 (C.I. 13655)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Very Satisfactory.

Baking Evaluation - Questionable to Unsatisfactory. This selection continues to show minimum mixing requirements and also absorption.

General Evaluation - Questionable to Unsatisfactory. From two years of testing, this sample continues to show low absorption and short mixing. Although it has satisfactory kernel characteristics and excellent milling characteristics, the poor baking performance is the deciding factor of this selection.

B61-95 (C.I. 13586)

Kernel Characteristics - Satisfactory to Questionable. It has a tendency to be low in 1000 kernel weight and a minimum amount of large kernels.

Milling Performance - Satisfactory to Questionable. The sample from Williston shows a definite tendency to be soft in milling characteristics.

Baking Evaluation - Satisfactory to Questionable. The sample from Dickinson required the lowest absorption of the series and was approximately 4-1/2% below that of the average for the standard varieties and was therefore classified as unsatisfactory. This appeared to be the only shortcoming of the sample in its baking performance.

General Evaluation - Questionable. Due to the soft milling characteristics which have been exhibited, this selection would show little promise.

ND 60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

ND 60-54 (C.I. 13596) Cont'd.

Baking Evaluation - Satisfactory to Questionable. The mixing time is minimal for this sample.

General Evaluation - Questionable. From two years' testing this selection has shown minimum mixing time and would show little promise.

NOTE: However, this variety on a general evaluation could be considered a satisfactory replacement for Rescue and is at least equal to, if not better than Rescue.

ND 264 (C.I. 13569)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Satisfactory. Minimum extraction and shows definite tendency to be soft in milling characteristics.

Baking Evaluation - Questionable to Satisfactory. Low loaf volume.

ND 405 (C.I. 13779)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. The sample from Dickinson gave extremely poor grain.

ND 407 (C.I. 13953)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory to Questionable. Low extraction and tendency to be soft in milling characteristics for the Dickinson sample.

Baking Evaluation - Questionable to Satisfactory. The absorption and mixing time for the selection were satisfactory, however, the grain for both stations was poor and especially true for the Dickinson sample. Also, the loaf volume was the lowest of all of the Dickinson samples.

WISCONSIN SAMPLES

Nine samples were received from the Madison, Wisconsin station. Two of these samples were unnamed varieties. Seven of the samples were the name varieties: Chris, Crim, Justin, Lathrop, Lee, Selkirk, and Thatcher. The results are given in Table 5.

6-12

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. This selection has been tested for the last 4 years and has given somewhat erratic results. In past performance it has definitely shown a tendency to give high ash in the flour which is not desirable. This year it did not show this. However, it does show approximately a 2% drop in protein from the wheat to flour during milling which would be undesirable. Baking performance was satisfactory this year, no doubt exhibited by the high protein in the flour and was the highest protein sample of the series submitted from Wisconsin. Because of the erratic results and apparent need for high protein in the sample to perform satisfactorily in the baking, it would appear that this selection shows little promise.

Wisc. 255 (C.I. 13588)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. This selection, on occasion, has shown some minimum performances; however, the over-all performance of this selection would indicate that it shows promise as a new variety.

UNIFORM REGIONAL NURSERY SAMPLES - 1965 CROP

A total of 480 Uniform Regional Nursery samples were received. These samples represented 16 stations from 6 states. Two blends were made. Each blend comprised two stations where the wheats were compatible and of close origin; namely, Morris and St. Paul, Minnesota and a blend of Williston, North Dakota and Sidney, Montana. To determine the compatibility, the wheats must be within 1/2 percent in protein content, similar kernel size distribution, test weight within 1/2 pound, and the same kernel textures. Any of the samples, regardless of the origin, which show differences in the characteristics were considered not to be compatible and were milled as individual samples to eliminate any possible erroneous results due to incompatibility. Thus, a total of 420 samples were milled and baked, which included the blends and individual samples. Thirty samples were received from each of the stations. Twenty-one new varieties or selections were included for quality evaluation in the Uniform Regional Nursery samples. The remainder of the samples were the commercially named varieties of Chris, Crim, Justin, Lee, Manitou, Marquis, Pembina, Selkirk, and Thatcher.

Ninety samples were received from the 3 Minnesota stations of Crookston, Morris and St. Paul. The samples from Morris and St. Paul were blended. Data are given in Tables 7 and 8 for the Crookston samples and the blended samples, respectively.

Ninety samples were received from 3 stations in Montana: Bozeman, Havre, and Sidney. However, due to the similarity between the Sidney samples and the Williston samples of North Dakota, these stations were blended.

The data for the Bozeman, Havre, and Sidney-Williston blend are given in Tables 9, 10, and 11, respectively. The data for the Sidney-Williston blend are included with the two other stations from Montana for the Montana state averages.

One hundred and fifty samples were received from 5 stations in North Dakota: Casselton, Dickinson, Fargo, Minot, and Williston. However, the Williston samples were blended with Montana samples from Sidney. The data for the 4 North Dakota stations were included in the North Dakota averages and are given in Tables 12, 13, 14, and 15, respectively. Several of the samples from the Casselton station contained immature and green kernels. These have been noted in Table 12.

Sixty samples were received from 2 stations in South Dakota: Highmore and Watertown. The data are given for these samples in Tables 16 and 17.

Thirty samples were received from the Madison, Wisconsin station. The data are given in Table 18.

Sixty samples were received from 2 Wyoming stations: Laramie and Sheridan. The data are given for these samples in Tables 19 and 20. The Laramie, Wyoming samples were severely frost damaged. They were processed primarily to show the effect which frost damage can have upon the various wheat, milling and baking characteristics; therefore, these samples were not graded or included in the state averages. It will be noted from the data in Table 19 for these samples, the very deleterious effect upon the baking quality, primarily exhibited by the dead doughs (lifeless) and low loaf volume. Also, the mixing times are short and very poor mixogram patterns are obtained.

In Table 21, are given the average results for each of the 30 samples submitted from the 6 states and 15 stations, excluding the Laramie samples. The results for the kernel characteristics, milling performance, and mixogram patterns were obtained by averaging the results from the 13 tables, 7 through 20, excluding Table 19 (Laramie). However, the baking results differ from previous reports in that the flours from each of the stations or blends (excluding the Laramie samples), were blended in equal proportions and baked by two different baking methods using 100 grams of flour. The regular straight dough rich formula baking procedure was used for one test, while for the second procedure a mixing tolerance baking method was employed. Added to this year's table is an additional column entitled, "General Evaluation," which takes into consideration the general over-all performance of the samples. This will afford a ready reference.

For simplicity and brevity of the report, as in previous reports, each variety will be discussed from the general over-all average of the results given in Table 21, rather than the individual stations. The general evaluation given summarizes the results of the two or more years' results and/or the tolerance test. The evaluation is more meaningful for the over-all performance of the variety when at least two or more crop years are included.

In Table 22, the averages are given by state for the 4 main varieties of Chris, Crim, Justin, and Selkirk. This table gives a comparison of the varieties by state, as well as state averages of the four varieties for comparative purposes, and the 1965 grand average. The 1964 grand averages for the same four varieties are also given for comparison of the two crop years. In general, the 1965 crop has better kernel characteristics, approximately 1% less protein, and somewhat better milling results with approximately equal extractions, but 2 points lower mineral content compared to the 1964 crop. The mixing time is slightly longer and the mixogram pattern stronger although the dough characteristic is slightly mellower than the 1964 crop.

Another change incorporated this year was that of using the average results of the varieties Chris, Crim, Justin, and Selkirk, for each of the individual stations or blends as a standard. In previous years, an average standard of the spring wheat crop was used for comparison; thus, even named varieties were rated as unsatisfactory from stations where they did not perform as well as the standard. Therefore, when comparing results of a variety from two different stations which might be rated as satisfactory at both locations in this year's report, one station, in actuality, might be unsatisfactory compared with the other station. For example, a comparison of the mixing times between Casselton samples and the Sheridan, Wyoming samples shows the average for the Casselton samples is 4-1/2 min., while the Sheridan samples average 2-1/4 min. If the Casselton samples were used as a standard, the Sheridan samples would be unsatisfactory due to the extremely short mixing time which is 2-1/4 min. less than the Casselton samples. The state averages given in Table 22 are additional guides for the relative performance for the crop year by states.

The average results for the new varieties or selections were:

II-54-30 (C.I. 13655)

Kernel Characteristics - Satisfactory.

Milling Performance - Very Satisfactory.

Baking Evaluation - Questionable. The absorption and dough characteristics were minimum.

General Evaluation - Unsatisfactory to Questionable. Kernel characteristics have been variable during the years this variety has been tested. Milling performance has been good to excellent, however, the milling characteristics on an over-all basis are not quite as outstanding in 1965 as in previous years. The selection has shown a low bake absorption and minimum quality, poor interior and loaf volume. This year the average loaf volume was good on the blend; however, mixing tolerance was very poor, therefore, the over-all rating of the variety would have to be unsatisfactory to questionable. The selection shows no promise.

II-55-11 (C.I. 13773)

Kernel Characteristics - Very Satisfactory.

Milling Performance - Satisfactory. The selection did not show as good milling characteristics as the kernel characteristics would indicate.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. Based on 3 crop years, this variety has a tendency to give erratic results from different areas both in milling and baking, but does show some promise.

II-58-57 (C.I. 13825)

Kernel Characteristics - Satisfactory to Questionable. Low 1000 kernel weight and small kernel size distribution.

Milling Performance - Questionable to Unsatisfactory. Relatively high ash, low extraction, and definitely a tendency towards softness in the kernel milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Unsatisfactory. Based on 2 years' performance of this variety, it definitely shows a low 1000 kernel weight, small kernel size distribution, low extraction, relatively high ash, and poor milling performance. Also, the baking results have been somewhat erratic for the 2 years; therefore, this selection would show little promise.

II-59-9 (C.I. 13826)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. The selection based on 2 crop years, has given satisfactory kernel characteristics, somewhat low extraction, satisfactory to questionable baking with somewhat erratic results, and the mixing tolerance is fair. This selection shows some promise.

61-107 (C.I. 13937)

Kernel Characteristics - Very Satisfactory.

Milling Performance - Questionable. Selection shows minimum extraction and a tendency to be soft in milling characteristics.

Baking Evaluation - Satisfactory.

61-107 (C.I. 13937) Cont'd.

General Evaluation - Satisfactory to Questionable. This variety does have some questionable milling characteristics, and the mixing tolerance is minimum; however, the selection does show some promise.

B60-82 (C.I. 13823)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Minimum extraction, relatively high ash.

Baking Evaluation - Questionable to Satisfactory. The general appearance of the loaf is poor.

General Evaluation - Questionable. Based on 2 years' performance of this variety, the milling has definitely been questionable to unsatisfactory showing low extraction. The kernel characteristics have been questionable to satisfactory, primarily due to 1000 kernel weight and small kernel size distribution. The baking evaluation has been satisfactory to questionable and the selection this year showed a poor tolerance to extended mixing. The selection shows little promise.

B61-89 (C.I. 13946)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable to Unsatisfactory. Low extraction, high ash, and soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable to Unsatisfactory. The general evaluation based primarily on the poor milling characteristics and the lack of tolerance to extended mixing. Selection shows little promise.

B61-95 (C.I. 13586)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction and tendency towards soft milling characteristics.

Baking Evaluation - Satisfactory to Questionable.

General Evaluation - Questionable to Unsatisfactory. Based on 4 crop years, the variety has consistently shown low extraction and a

B61-95 (C.I. 13586) Cont'd.

tendency toward soft milling characteristics. The 1000 kernel weight and small kernel size distribution in past years have also been kernel characteristics which were undesirable. The baking performance has not been outstanding and generally has shown minimum absorption and somewhat poor loaf interior. The tolerance of mixing is minimum. This selection shows no promise as an over-all spring wheat.

ND 60-54 (C.I. 13596)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Performance - Questionable to Satisfactory. The absorption and grain are minimum.

General Evaluation - Questionable to Satisfactory. Based on 2 crop years, this selection has shown satisfactory to questionable kernel characteristics with a tendency to have small kernel size distribution. However, this was not the case this past year. The milling performance last year was questionable with low extraction as the primary cause. This year it is minimum but satisfactory. The baking evaluation continues to be questionable to satisfactory, primarily due to minimum mixing time and still continues to show a somewhat inferior interior of the loaf. The mixing tolerance of this selection is fair and the variety does show some promise. This variety would be a satisfactory replacement for Rescue.

ND 264 (C.I. 13569)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. The selection gives minimum of extraction and relatively high ash. Also, the protein spread between the flour and wheat is the highest for all the selections.

Baking Evaluation - Questionable. The selection had relatively low loaf volume and the tendency toward a weak dough.

General Evaluation - Questionable to Unsatisfactory. The rating of this variety is based on 4 crop years and shows it definitely gives inconsistent results from different areas. The milling performance is generally poor. It has a minimum loaf volume and the mixing tolerance is only minimum. This variety shows no promise.

ND 321 (C.I. 13952)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Selection gives low extraction and tendency toward soft milling characteristics.

Baking Evaluation - Satisfactory. The selection was rated as satisfactory but the color is down somewhat on an average this year.

General Evaluation - Satisfactory to Questionable. This rating is based primarily on the milling characteristics. Selection shows some promise.

ND 363 (C.I. 13828)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on two crop years' performance this selection has shown satisfactory kernel characteristics and from questionable to satisfactory milling performance with a tendency to give minimum extraction. The baking evaluation has been satisfactory to questionable in past years, showing a tendency toward minimum mixing time. This year it shows some tendency to lack tolerance to extended mixing. This variety does show some promise.

ND 405 (C.I. 13779)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. This variety is rated on an over-all basis of 3 crop years. Previous crop years have shown low extraction and this year showed a minimum but satisfactory extraction. In past tests it has shown poor loaf interior. This year it shows lack of tolerance to extended mixing. The variety shows some promise.

ND 407 (C.I. 13953)

Kernel Characteristics - Satisfactory.

Milling Performance - Questionable. Low extraction and tendency toward soft milling characteristics.

Baking Evaluation - Satisfactory.

General Evaluation - Questionable. Because of the tendency toward soft milling characteristics and low extraction the selection would have to be rated as questionable. Baking evaluation is satisfactory and the tolerance to extended mixing was very good, therefore, it does show some promise.

ND 442 (C.I. 13954)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. This selection, however, does have a tendency toward low extraction.

Baking Evaluation - Satisfactory to Questionable. Selection tends to have minimum of mixing time and definite tendency toward poor interior of the loaf.

General Evaluation - Satisfactory to Questionable. The general characteristics of the loaf and lack of tolerance to mixing are the main factors for the questionable rating. However, the variety shows some promise.

ND 455 (C.I. 13955)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory. Although the selection showed minimum of extraction.

Baking Evaluation - Questionable. Selection had minimum absorption, minimum dough characteristics, and poor interior of loaf.

General Evaluation - Questionable to Satisfactory. The poor general loaf characteristics, lack of tolerance to mixing, and minimum milling performance show that this selection would have little promise.

ND 456 (C.I. 13956)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable to Unsatisfactory. Minimum absorption, weak dough, and relatively short mixing time.

General Evaluation - Questionable to Unsatisfactory. Due primarily to the weak dough, this selection would show little promise.

ND 457 (C.I. 13957)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory. From the data on the samples submitted this year, this variety shows promise.

SD 624 (C.I. 13947)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. Selection has minimum absorption, minimum mixing time, and very poor dough as well as poor color and low loaf volume.

General Evaluation - Unsatisfactory. Based on the baking performance, this selection shows no promise.

SD 625 (C.I. 13948)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. Short mixing time and poor dough characteristics.

General Evaluation - Unsatisfactory. Because of unsatisfactory baking performance, lack of tolerance to mixing and poor mixogram pattern, the selection shows no promise.

SD 626 (C.I. 13949)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Unsatisfactory. Low absorption, short mixing time, weak dough, and poor grain interior.

General Evaluation - Unsatisfactory. Baking characteristics and poor tolerance to mixing show this selection to have no promise.

MONTANA SAWFLY YIELD NURSERY SAMPLES

Forty-eight samples were received from 3 stations in Montana. Sixteen samples from the stations of Cutbank, Dutton, and Sidney were received. Five of these samples from each station were name varieties: Chinook, Cypress, Rescue, Sawtana, and Thatcher. Eleven of these samples from each station were unnamed varieties. The data for these samples for the individual stations are given in Tables 23 through 25. In Table 26 are given the average results of the 3 stations for each of the varieties with an additional general evaluation column. This year, for each station, the varieties of Chinook, Rescue, and Thatcher were averaged for a standard performance and the results of the individual samples were compared to this average.

The average results for the new or unnamed varieties were:

60-54 (C.I. 13596)

Kernel Characteristics - Very Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. The rating is based on 3 crop years. The 1964 crop gave minimum mixing time and low absorption, however, the 1963 crop baked satisfactorily. This variety shows some promise.

61-107 (C.I. 13937)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The absorption was minimum and the dough characteristics tended to be weak.

General Evaluation - Questionable to Unsatisfactory. Based on 2 crop years, the baking performance has been minimum and has consistently shown a tendency to give weak dough characteristics and low absorption. This selection shows little promise.

62-133

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. The selection gives minimum absorption, and shows a definite tendency toward weak dough.

General Evaluation - Questionable. Based on this year's results the selection has minimum absorption and weak dough characteristics, therefore, would show little promise.

63-114

Kernel Characteristics - Very Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Mixing time is the shortest of all the samples submitted.

General Evaluation - Questionable. Based on this year's performance this selection would show no promise because of the short mixing requirement.

B61-23 (C.I. 13832)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory.

General Evaluation - Satisfactory to Questionable. Based on 2 crop years, the selection would have to be rated satisfactory to questionable although it was rated as satisfactory this year because of the short mixing time and poor interior shown in last year's results. However, this selection shows some promise.

B61-69 (C.I. 13831)

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Interior of loaf somewhat inferior for good quality.

B61-69 (C.I. 13831) Cont'd.

General Evaluation - Satisfactory to Questionable. Based on 2 crop years, the selection has given somewhat erratic results thus giving it the general rating of satisfactory to questionable. The variety does show some promise.

B64-1 (C.I. 13950)

Kernel Characteristics - Questionable to Unsatisfactory. Low test weight, per kernel size distribution, and low 1000 kernel weight.

Milling Performance - Questionable. Low extraction and tendency toward soft milling characteristics.

Baking Evaluation - Unsatisfactory. Low absorption, poor or weak dough, poor grain interior, and low loaf volume.

General Evaluation - Unsatisfactory. This variety is down in all characteristics, therefore, shows no promise. The results of the Sidney sample were poor.

B64-23 (C.I. 13951)

Kernel Characteristics - Unsatisfactory to Questionable. Low test weight, small kernel size distribution, and low 1000 kernel weight.

Milling Performance - Unsatisfactory. Minimum extraction, high ash, and tendency toward soft kernel characteristics.

Baking Evaluation - Questionable. Minimum absorption.

General Evaluation - Unsatisfactory to Questionable. Kernel characteristics and milling characteristics are the main reasons for this evaluation. Selection shows little promise.

L 7167-112

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Questionable. Minimum mixing time.

General Evaluation - Questionable. Evaluation based primarily on the baking performance. Selection shows some promise.

L 7167-194

Kernel Characteristics - Satisfactory to Questionable. Minimum test weight and kernel size distribution.

Milling Performance - Satisfactory to Questionable. Maximum mineral content.

Baking Evaluation - Questionable. Minimum absorption, weak dough characteristics and somewhat poor color.

General Evaluation - Questionable. The selection shows little promise based on the minimum milling performance, weak dough characteristics and erratic results.

SC 7531-2

Kernel Characteristics - Satisfactory.

Milling Performance - Satisfactory.

Baking Evaluation - Satisfactory to Questionable. Minimum mixing, somewhat poor loaf characteristics, and minimum loaf volume.

General Evaluation - Satisfactory to Questionable. Baking evaluations show some questionable characteristics. The Sidney sample was definitely down. This selection shows some promise.

TABLE 1
FIELD PLOT NURSERY SAMPLES
Fort Collins, Colorado
1965 CROP

Variety or Sel. No.	C. I. No.	T.W. 1/	1000 Kernels	Kernel Size Lg. Med. Sm.	Pot. Min. Yld.	Wht. 2/ 2/	Kern. Pro. 3/ 2/	Flr. Ext. 2/ 2/	Min. @ 65% Ex. 2/ 2/	Flr. Pr. 4/ 4/	Mlg. Char. 3/ 3/	Mix. Abs. 2/ 2/	Mix. Abs. 2/ 2/	Bake Time 5/ 5/	Dough Char. 6/ 6/	Crumb Color 7/ 7/	Crumb Grain 8/ 8/	Loaf Bake Eval. 3/ 3/	cc.
Carthatch	13345	61.5	29.9	52	46	2	75.5	1.78	12.1	S-Q	64.3	.42	11.0	N-S	Q	59.3	3	59.3	3-1/4
Chris	13751	63.0	31.7	51	47	2	75.5	1.82	12.8	S	65.3	.40	11.3	N-S	S-Q	60.3	2	60.3	2-3/4
Crim	13465	60.8	35.7	73	25	2	76.6	1.82	11.9	S	66.1	.37	10.7	N	S	61.0	5	61.0	4-3/4
Lee	12488	61.4	36.4	66	32	2	76.2	1.73	11.8	S	63.3	.39	10.5	N-S	Q	58.7	4	59.7	4
Manitou	13775	61.2	29.9	46	52	2	75.2	1.74	11.8	S-Q	66.3	.41	11.7	N	S	60.0	2	60.0	3
Marquis	3641	60.7	28.1	27	69	4	74.2	1.82	10.4	Q	63.4	.42	9.3	N	S-Q	54.5	3	56.5	3-3/4
Saunders	12567	60.1	31.2	51	46	3	75.4	1.72	12.2	S	63.5	.44	10.3	N-S	Q	56.7	3	58.7	4
Seelkirk	13100	60.5	36.2	66	32	2	76.2	1.85	12.1	S	67.9	.40	10.7	N	S	58.7	2	59.7	2-3/4
Thatcher	10003	61.0	29.6	44	53	3	75.1	1.76	11.8	S-Q	62.3	.45	11.0	N-S	Q	58.3	3	59.3	3-1/2
Wisc. 255	13588	62.5	38.2	68	31	1	76.4	1.86	12.9	S	66.2	.41	11.7	N	S	61.9	4	61.9	3-3/4
B61-88	13772	63.1	34.7	68	30	2	76.3	1.82	12.4	S	66.1	.40	11.1	N	S	62.3	4	62.3	3-3/4
ND 229-1	13589	62.0	33.9	73	25	2	76.6	1.75	11.7	S	67.6	.39	10.4	N	S	61.0	5	61.0	4
B61-95	13586	63.8	36.2	66	33	1	76.3	1.76	11.9	S	63.4	.38	10.5	N	S	59.3	3	60.3	4
ND 60-54	13596	62.2	42.2	73	25	2	76.6	1.75	11.4	S	67.5	.37	10.4	N	S	59.0	3	60.0	3

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 2
FIELD PLOT NURSERY SAMPLES
Southwest Colorado
1965 CROP

Variety or Sel. No.	C. I. No.	T.W. Kwt. <u>1/</u>	1000 Lg. <u>1/</u>	Kernel Size Lg. Med. Sm. <u>2/</u>	Pot. Min. Wht. Pro. <u>2/</u>	Wht. Min. Char. <u>2/</u>	Flr. Ext. <u>2/</u>	Flr. 65%Ex. <u>2/</u>	Min. @ 65%Ex. <u>2/</u>	Flr. Pro. <u>4/</u>	Mfg. Char. Per. <u>4/</u>	Mix. Abs. <u>2/</u>	Mix. Par. <u>2/</u>	Bake Time <u>2/</u>	Dough Char. <u>2/</u>	Crumb Color <u>2/</u>	Crumb Grain Vol. <u>2/</u>	Loaf Bake Eval. <u>2/</u>
#/Bu. <u>3/</u>	g. <u>4/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	% <u>5/</u>	cc. <u>5/</u>		
Canthatch	13345	61.3	35.3	75	24	1	76.7	1.69	11.6	65.1	.44	10.7	N-S	Q	61.9	2-1/2	M	
Chris	13751	61.8	33.2	65	34	1	76.2	1.75	11.6	64.1	.49	10.8	N-S	Q	63.8	2-3/4	M-W	
Crim	13465	61.5	38.8	84	14	2	77.1	1.74	11.2	65.4	.41	10.4	N-S	S-Q	64.7	3-1/2	M-W	
Lehni 53	13238	60.0	39.8	82	17	1	77.1	1.61	9.0	61.7	.37	7.3	S	U	53.7	1	53.7	
Manitou	13775	60.6	32.5	70	28	2	76.4	1.71	12.0	65.8	.43	10.9	N-S	S-Q	62.5	2	62.5	
Marquis	3641	61.9	37.0	79	19	2	76.9	1.70	11.5	65.1	.52	10.4	N-S	U	62.5	2-1/4	M	
B61-95	13596	63.4	38.0	83	16	1	77.1	1.70	10.5	64.2	.42	9.6	N-S	S-Q	61.9	2-1/4	S1D	
ND 60-54	13596	62.3	41.3	75	23	2	76.7	1.71	11.1	69.4	.41	10.0	N-S	S-Q	62.5	2	62.5	
															110	SIC	80 01	
															110	90	740 Q-S	
															105	80	745 S	
															100	C	490 U	
															100	SIC	80 1	
															110	C	765 Q	

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 3
FIELD PLOT NURSERY SAMPLES

1/ clean dry - subtract 1#/bu. for dockage free T.W.

14% moisture basis.
S = Satisfactory O = Questionable U = Unatisfactory V = Very
12/14% moisture basis for economic reasons.

S - Satisfactory, Q - Questionable, U - Unsatisfactory,
N - Normal, H - Hard, S - Soft.

4/ N = Normal, n = hard, S = soft.
4/ Refer to reference mixogram for numerical curve pattern.

B - **Bucky**, S - **Strong**, M - **Mellow**, W - **Weak**, D - **Dead**, V - **Very**.

C - Creamy, G - Gray, D - Dull, S1 - Slightly, S2 - Very, B - Bright, W - White.

0 - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 4
FIELD PLOT NURSERY SAMPLES
Williston, North Dakota
1965 CROP

Variety or Sel. No.	C. I. No.	T.W. Kwt. 1/	1000 Kwt. Lb.	Kernel Size Lg. Med. Sm.	Pot. Min. 2/ 2/	Wht. Kern. Pro. Char. 2/ 2/	Flr. Ext. 2/ 2/	Min. @ 65% Ex. 2/ 2/	Flr. Ext. 2/ 2/	Mig. Char. Per. 2/ 2/	Mig. Abs. Pat. 2/ 2/	Mix. Abs. Pat. 2/ 2/	Bake Time 2/ 2/	Dough Char. 2/ 2/	Crumb Color 2/ 2/	Crumb Grain Vol. 2/ 2/	Bake Eval. 2/ 2/
																	cc.
#/Bu.	g.	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	min.
Canthatch	13345	62.2	24.9	6	91	3	73.2	1.64	14.1	S-Q	66.0	.38	13.6	N	61.9	3-3/4	S
Chinook	13220	63.0	26.8	10	88	2	73.4	1.57	13.3	S	67.1	.32	13.0	N-S	60.3	3-1/2	M-S
Chris	13751	62.5	26.1	8	90	2	73.3	1.68	15.1	S-Q	66.7	.35	14.3	N	62.5	3	S-Q
Crim	13465	62.4	30.0	31	68	1	74.5	1.70	15.4	S	64.5	.40	14.8	N-S	65.3	5	65.3
Fork		63.4	30.3	27	72	1	74.3	1.52	14.6	S	65.2	.35	14.3	N-S	61.6	3	61.6
Justin	13462	60.7	29.6	24	74	2	74.1	1.66	15.1	S	68.3	.34	14.4	N	66.0	5	66.0
Lee	12488	60.7	26.3	7	89	4	73.2	1.67	13.7	S	64.1	.38	13.3	N-S	61.9	5	61.9
Manitou	13775	61.7	25.8	10	88	2	73.4	1.53	14.3	S-Q	65.8	.34	14.0	N	60.3	4	M-S
Northman		61.5	31.7	28	71	1	74.4	1.52	13.3	S	68.7	.33	12.9	N	60.3	4	60.3
Pembina	13332	61.8	26.7	8	90	2	73.3	1.73	15.3	S	65.7	.38	14.6	N	61.9	6	61.9
Plainsman		61.6	31.2	28	71	1	74.4	1.51	13.1	S	69.1	.33	12.9	N	60.7	4	60.7
Rescue	12435	61.8	24.6	2	94	4	72.9	1.58	13.2	Q	68.1	.32	12.8	N	59.7	5	59.7
Sekirk	13100	61.6	30.1	16	82	2	73.7	1.52	13.8	S	68.5	.35	13.5	N	60.3	3	60.3
Thatcher	10003	61.4	23.9	3	93	4	73.0	1.70	14.1	S-Q	65.2	.41	13.7	N	59.7	3	59.7
II-54-30	13655	65.0	29.2	10	89	1	73.5	1.36	13.1	S	68.3	.29	12.5	N	59.0	5	59.0
B6-95	13586	62.6	29.0	12	86	2	73.5	1.53	13.5	S	65.3	.32	13.2	N-S	61.0	6	61.0
ND 60-54	13596	62.8	32.6	22	77	1	74.1	1.47	13.6	S	68.5	.33	13.1	N	62.5	3	62.5
ND 264	13569	61.1	29.8	13	85	2	73.6	1.62	14.4	S	65.6	.37	13.3	N-S	62.5	6	62.5
ND 405	13779	60.2	31.0	20	79	1	74.0	1.54	15.1	S	68.9	.34	14.8	N	64.2	6	64.2
ND 407	13953	62.1	31.4	28	70	2	74.3	1.60	15.4	S	64.9	.35	14.8	N	64.2	6	64.2

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 5
FIELD PLOT NURSERY SAMPLES
Madison, Wisconsin

Variety or Sel. No.	C.I. No.	T.W. <u>1/</u>	Kernel Size Kwt. <u>1/</u>	1000 Kwt. <u>1/</u>	Pot. <u>%</u>	Wht. <u>%</u>	Wht. Pro. Min. <u>2/</u>	Kern. Char. Yld. <u>3/</u>	Flr. Ext. <u>2/</u>	Flr. Min. @ 65% Ex. <u>2/</u>	Mfg. Pro. Char. <u>4/</u>	Mix. Abs. Pat. <u>2/</u>	Mix. Abs. Pat. <u>2/</u>	Bake. Abs. Pat. <u>2/</u>	Dough Char. <u>6/</u>	Crumb Color. <u>7/</u>	Crumb Grain Vol. <u>8/</u>	Bake Eval. <u>3/</u>	
Chris	13751	62.9	31.9	59	40	1	75.9	1.73	15.2	S	65.7	.38	14.0	N	S	64.2	3	100-2-3/4	M-S
Crim	13465	62.8	37.3	76	23	1	76.8	1.69	13.6	S	66.0	.40	12.6	N	S	63.8	5	105-4-1/4	S
Justin	13452	62.9	35.2	76	23	1	76.8	1.84	15.0	S	68.3	.36	13.6	N	S	62.8	5	100-3-1/4	S
Lathrop	13457	62.2	38.2	69	30	1	76.4	1.73	12.4	S	70.4	.37	11.2	N	S	61.0	5	105-3-1/2	W
Lee	12448	62.6	37.3	70	29	1	76.5	1.73	12.9	S	61.7	.42	12.1	N-S	Q	61.0	5	115-3-1/2	M
Selkirk	13100	61.1	37.7	66	33	1	76.3	1.82	12.4	S	67.6	.42	11.4	N	S	59.3	3	59-3-3-1/4	W
Thatcher	10003	61.9	31.2	46	52	2	75.2	1.71	14.3	S	64.9	.44	13.1	N-S	Q	61.0	4	95-61.0-3-1/4	W
6-12	60.8	37.5	58	41	1	75.9	1.71	16.3	S	67.4	.42	14.4	N	S	64.7	5	105-64.7-3-1/2	M-S	
Wisc. 255	13588	62.7	38.5	69	30	1	76.4	1.75	14.5	S	66.6	.42	13.4	N	S	64.4	4	100-64.4-3-1/4	M-S

1/ Clean dry - subtract 1#/bu, for dockage free T.W.

14% moisture basis.

2/ Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

3/ N - Normal, H - Hard, S - Soft.

4/ Refer to reference mixogram for numerical curve pattern.

5/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

6/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.

7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

8/ 0 - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 6
FIELD PLOT STATE AVERAGES

1965 CROP

Variety or Sel. No.	C.I. No.	T.W. Kwt.	1000 Lg.	Kernel Med.	Size Sm.	Pot. Min.	Wht. Pro. 2/	Kern. Char. 3/	COLORADO			NORTH DAKOTA			WISCONSIN			CROP YEAR AVERAGE			
									#/Bu.	g.	%	%	%	%	%	%	%	%	%	%	
Chris	13751	63.0	31.7	51	47	2	75.5	1.82	12.8	S	65.3	.40	11.3	N-S	60.3	2	60.3	2-3/4	W	105	
Crim	13465	60.8	35.7	73	25	2	76.6	1.82	11.9	S	66.1	.37	10.7	N	61.0	5	61.0	4-3/4	W	90	
Selkirk	13100	60.5	36.2	66	32	2	76.2	1.85	12.1	S	67.9	.40	10.7	N	58.7	2	59.7	2-3/4	W	100	
1965 Average	9/	61.4	34.5	63	35	2	76.1	1.83	12.3		66.4	.39	10.9		60.0	3	60.3	3-1/2		105	
1964 Average	9/	No samples in 1964.																	92		
Chris	13751	61.7	27.7	24	75	1	74.1	1.76	14.5	S	65.9	.40	14.0	N	63.0	4	63.0	3-1/4	M-S	108	
Crim	13465	61.6	29.0	31	68	1	74.5	1.79	14.6	S	65.1	.43	14.0	N-S	64.4	4	64.4	4	M-S	110	
Justin	13462	60.2	29.0	23	75	2	74.1	1.82	15.1	S	67.9	.40	13.9	N	65.5	5	65.5	4	S	100	
Selkirk	13100	60.9	28.1	12	86	2	73.5	1.77	14.1	S-Q	67.0	.40	13.8	N	60.3	4	60.3	3-1/2	M-S	108	
1965 Average	9/	61.1	28.5	23	76	1	74.1	1.79	14.6		66.5	.41	13.9		63.3	4	63.3	3-3/4		107	
1964 Average	9/	59.3	26.1	16	80	4	73.7	1.77	15.4		66.9	.41	14.7		64.1	4	62.0	3		105	
Crop Average	1965	9/	61.6	32.8	52	47	1	75.6	1.80	13.7		66.6	.40	12.6		61.9	4	62.0	3-1/2		91
Crop Average	1964	9/	59.1	29.4	31	66	3	74.5	1.85	14.9		67.7	.41	14.1		63.6	5	61.5	3-1/2		96

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.

S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

G - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, Sl - Slightly, C - Close.

8/ 9/ Averages are obtained using the results for the varieties of Chris, Crim, Justin and Selkirk.

TABLE 7
UNIFORM REGIONAL NURSERY SAMPLES
Crookston, Minnesota

Variety or Sel. No.	C. I. No.	T. W. Kwt.	1000 Kwt.	Kernel Lg.	Size Med.	Pot. Sm.	Wht. Yld.	Wht. Pro. 2/	Kern. Char. 3/	Wht. Pro. 2/	Wht. Min. 2/	Wht. Pro. 2/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. Ext. 2/	Mlg. Char. 3/	Mlg. Per. 2/	Mix. Abs. 2/	Mix. Abs. 2/	Bake Time 2/	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol. 8/	Bake Eval. 3/	cc.
Chris	13751	64.0	31.7	53	46	1	75.6	1.62	14.9	S	63.9	.41	14.7	N	VS	65.7	4	63.5	2-1/4	W	120	BW	90	167	Q-U	
Crim	13465	62.0	31.4	50	48	2	75.4	1.67	13.2	S	62.9	.47	12.6	N	S	65.7	6	63.5	5-1/4	M	105	W	90	169	S	
Justin	13462	62.0	30.0	41	56	3	74.9	1.76	14.9	S	62.4	.44	14.2	S	S	66.3	5	64.2	4-1/4	M-S	95	W	95	164	S	
Lee	12488	61.0	28.1	14	82	4	73.5	1.68	12.9	Q	60.0	.47	12.6	N	Q	62.8	5	62.8	3-3/4	M-S	105	W	100	160	S	
Manitou	13775	62.0	29.4	39	59	2	74.9	1.68	15.0	S	63.6	.45	14.3	N	S	63.5	3	63.5	2-1/2	M	110	SIC	80	0	177	Q
Marquis	3661	60.0	23.4	7	87	6	73.1	1.81	12.0	Q	56.6	.56	11.0	N-S	U	58.3	3	58.3	3	W-D	110	C	90	154	U	
Pembina	13332	60.5	31.5	31	67	2	74.5	1.74	13.2	S	61.9	.48	12.4	N	Q	61.9	4	61.9	4	M	105	SIC	90	170	Q-S	
Selkirk	13100	61.5	31.6	40	58	2	74.9	1.79	13.6	S	61.0	.48	12.1	N	Q-S	61.9	3	61.9	3-1/4	W	100	W	95	168	Q	
Thatcher	10003	59.0	22.6	2	92	6	72.8	1.77	13.4	U	61.0	.53	12.7	N	U	61.0	4	61.0	3	W	105	C	90	168	Q-U	
III-54-30	13655	65.0	33.9	54	45	1	75.7	1.60	13.8	S	64.7	.40	12.7	N	VS	62.5	4	62.5	3-1/4	M-S	110	SIC	95	175	Q	
III-55-11	13773	64.0	40.7	76	23	1	76.8	1.71	14.6	VS	61.4	.45	13.9	N	S	64.7	6	62.8	3-3/4	M-S	110	W	90	0	190	S
III-58-57	13825	62.0	33.6	50	49	1	75.5	1.65	13.9	S	59.5	.47	13.2	N	Q	64.4	5	62.3	3-3/4	M-S	105	W	95	173	S	
III-59-9	13826	62.5	36.1	64	34	2	76.1	1.71	13.0	S	60.7	.47	12.2	N	S	64.2	6	62.3	4-1/4	M-S	100	W	80	1	174	S-Q
61-107	13931	62.5	40.5	67	31	2	76.3	1.66	14.0	VS	58.0	.48	13.7	N-S	U	64.4	4	62.3	2-3/4	M	110	W	90	177	Q-U	
B60-82	13823	63.0	32.2	43	55	2	75.1	1.65	13.1	S	59.7	.46	12.6	N	Q	62.3	4	62.3	3-1/2	M	110	W	80	179	Q	
B61-89	13946	62.0	37.2	69	30	1	76.4	1.71	14.2	S	60.6	.48	13.4	N	S-Q	65.7	5	63.5	4-1/2	M	105	SIC	90	170	S-Q	
B61-95	13586	64.0	35.6	56	43	1	75.5	1.63	12.9	S	58.3	.46	12.0	N-S	Q	60.3	4	60.3	3	M	105	W	105	0	170	Q-U
ND 60-54	13596	62.0	36.8	41	57	2	75.0	1.75	13.3	S	60.2	.46	12.6	N	S	61.9	3	61.9	2-1/4	M	110	C	95	155	U	
ND 264	13569	63.0	36.2	68	31	1	76.4	1.68	14.0	S	60.9	.48	12.7	N	S-Q	64.2	4	62.5	2-1/2	M	95	W	95	174	U	
ND 321	13952	61.5	31.0	30	68	2	74.4	1.81	13.6	S	58.9	.46	12.7	N-S	Q-U	62.5	5	62.5	4-1/2	M-S	110	W	95	162	S-Q	
ND 363	13828	61.5	32.9	48	49	3	75.3	1.81	14.5	S	62.3	.46	13.7	N	S	64.4	5	62.5	3	M-S	100	SIC	90	173	S-Q	
ND 405	13779	62.0	36.2	62	36	2	76.0	1.74	14.2	S	60.9	.43	13.3	N	S	64.2	6	62.4	4	M-S	105	W	95	170	S-Q	
ND 442	13953	64.0	40.2	74	25	1	76.7	1.66	14.0	VS	59.6	.42	12.9	N	Q-U	63.8	5	63.8	3	M	95	W	80	0	180	Q
ND 455	13955	63.0	31.8	39	58	3	74.8	1.64	11.6	S	61.1	.42	10.6	N	S	67.9	6	64.0	3-1/2	M-S	100	W	90	178	S	
ND 456	13956	63.5	36.6	60	39	1	76.0	1.69	12.9	S	62.5	.39	12.2	N	VS	61.9	4	61.9	3-3/4	M	110	W	105	0	158	U
ND 457	13957	63.5	33.2	56	40	4	75.6	1.74	13.9	S	63.4	.41	13.0	N	S	64.4	4	62.4	3	M	105	SIC	90	161	Q	
SD 624	13947	63.5	36.9	66	32	2	76.2	1.75	13.8	S	61.8	.44	13.4	N	S	63.5	2	63.5	2	W	105	W	90	0	178	U
SD 625	13948	64.0	34.0	40	58	2	74.9	1.65	14.4	S	62.2	.44	14.2	N	S	66.0	3	63.6	2	W	110	VC	90	158	U	
SD 626	13949	64.0	37.6	62	34	4	75.9	1.60	12.9	S	62.0	.42	11.9	N	S	62.3	3	62.3	2-3/4	M	100	SIC	80	171	U-Q	

1/ Clean dry - subtract 1#/bu. for package free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 8
UNIFORM REGIONAL NURSERY SAMPLES
Blend of Morris, and St. Paul, Minnesota

Clean dry - subtract 1#/bu. for dockage free T.W.
14% moisture basis.

140 were basis. S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very-Normal. H - Hard, S - Soft.

1/ *N* - Normal, *u* - unit, *s* - soil.
 2/ Refer to reference mixogram for numerical curve pattern.

TABLE 9
UNIFORM REGIONAL NURSERY SAMPLES
Bozeman, Montana

Variety or Sel. No.	C. I. No.	T. W. 1/	1000 kwt.	Kernel Lg. Med. Sm.	Size Yld.	Pot. 2/ 3/	Wht. Pro. 2/ 3/	Kern. Char. 2/ 3/	Flr. Ext. 2/ 3/	Min. @ 65% Ex. 2/ 3/	Flr. Pro. 2/ 3/	Mlg. Char. 2/ 3/	Mlg. Per. 2/ 3/	Mix. Abs. 2/ 3/	Bake Abs. 2/ 3/	Mix. Time 2/ 3/	Dough Char. 2/ 3/	Crumb Color 2/ 3/	Dough Grain Vol. 2/ 3/	Crumb Grain Vol. 2/ 3/	Leaf Vol. 2/ 3/	Bake Eval. 2/ 3/	cc.
Chris	13751	59.0	26.1	8	86	6	73.1	1.68	16.0	S-Q	62.6	.51	15.3	N	S-Q	65.7	3-1/4	W	105 C	90	155 Q		
Crim	13465	60.5	33.0	33	63	4	74.5	1.60	14.9	S	61.6	.44	14.4	N	S	65.3	4-3/4	M	105	100	157 S		
Justin	13462	60.0	31.3	37	60	3	74.7	1.67	16.0	S	63.0	.40	15.5	N	S	66.0	3-3/4	W	105	95	152 Q		
Lee	12488	59.0	29.8	26	70	4	74.1	1.67	15.6	S	59.9	.46	14.9	N	S	64.4	4-2-3/4	N	100 W	95	171 U-Q		
Manitou	13775	58.5	25.4	14	81	5	73.5	1.64	16.0	S-Q	62.1	.47	15.1	N	S	63.2	2	63.2	2	110 SIC	90	172 U	
Marquis	3641	59.0	26.7	15	81	4	73.6	1.77	16.6	S-Q	59.0	.47	15.7	N	S-Q	64.2	5	64.2	3-3/4	M-S	110 SIC	90	165 S
Pembina	13332	59.0	26.8	44	55	1	75.2	1.63	15.3	S	62.7	.44	14.4	N	S	62.8	3	62.8	2-1/2	W	110 SIC	95 W	155 U
Seikirk	13100	58.0	32.8	7	88	5	73.1	1.54	15.4	S	60.7	.47	14.6	N	S	61.9	4	61.9	4	M-S	110 SIC	90	177 S-Q
Thatcher	10003	59.0	26.3	18	78	4	73.7	1.62	15.4	S	60.2	.50	14.8	N	Q	62.5	3	62.5	2	W	105	90	169 U
II-54-30	13655	61.5	28.8	4	89	7	72.9	1.52	14.7	S-Q	62.2	.39	14.2	N	VS	62.5	4	62.5	4	M	115 BC	90	177 S
II-55-11	13773	59.5	27.0	9	83	8	73.1	1.72	16.2	S-Q	62.9	.45	14.8	N	S	62.5	7	67.5	5-1/4	M	110 SIC	80 O	183 S
II-58-37	13825	57.0	21.0	4	83	13	72.6	1.77	16.2	Q	56.2	.51	14.7	N-S	U	66.6	5	64.7	4	W	100	80	177 Q
II-59-9	13826	58.0	33.2	43	51	6	74.9	1.52	15.0	S	60.7	.44	14.4	N	S	65.0	5	63.2	4-1/4	M	100 W	90	168 S
61-107	13937	61.0	38.6	56	43	1	75.8	1.51	14.8	VS	59.3	.48	14.6	N	S-Q	64.2	2	64.2	2	VW	100 W	80 T	171 U
B60-82	13823	59.0	26.3	9	87	4	73.2	1.60	16.3	S	59.2	.45	15.1	N	S-Q	65.7	5	63.5	3-1/4	M-S	100	90	175 S-Q
B61-89	13946	58.5	30.9	33	61	6	74.4	1.73	15.2	S	57.8	.48	14.5	N-S	Q	65.7	5	63.5	4-1/2	M-S	115 SIC	90	180 S
B61-95	13586	57.5	29.0	3	88	9	72.7	1.57	16.3	Q	55.5	.44	15.2	N-S	U	63.2	4	63.2	4	M	100	95	172 S-Q
ND 60-74	13596	59.5	31.2	9	87	4	73.3	1.58	15.0	S	59.2	.46	13.9	N	S-Q	61.9	5	61.9	4	M	110 SIC	90	161 Q
ND 264	13569	58.5	28.5	17	76	7	73.5	1.74	16.3	S	59.7	.50	15.3	N	Q	65.7	6	63.5	4-1/2	W	105	90	159 Q
ND 321	13952	58.0	30.8	21	72	7	73.7	1.68	15.8	N	58.6	.43	14.8	N-S	Q	65.7	5	63.5	4	W	100	90 T	154 Q-U
ND 363	13828	59.0	30.0	19	78	3	73.8	1.70	15.5	S	60.7	.44	14.7	N	S	64.2	5	64.2	4-1/4	M-S	100	90	177 S
ND 405	13779	57.0	29.6	20	75	5	73.8	1.62	16.2	S	61.0	.44	15.5	N	S	64.7	6	64.7	6-1/4	M-S	105 C	80 O	171 S
ND 407	13953	56.5	24.3	4	72	8	72.8	1.82	16.5	Q	56.1	.47	15.3	N-S	U	65.3	9	63.2	6-1/4	M-S	105 SIC	80 O	184 Q-S
ND 442	13954	61.5	32.4	36	61	3	74.7	1.67	16.0	S	59.4	.51	14.6	N	Q	67.0	9	65.3	2-1/2	W	95	90	154 Q
ND 455	13955	59.5	25.3	3	90	7	72.8	1.63	16.0	Q	59.0	.42	15.4	N	S	66.3	5	64.2	4-1/4	W	100	90 SIC	159 Q
ND 456	13956	59.5	31.3	36	60	4	74.6	1.66	15.4	S	61.2	.39	14.6	N	VS	64.7	4	62.8	3-3/4	M-S	100	80 O	170 Q
ND 457	13957	60.0	26.3	15	81	4	73.6	1.70	15.9	S	62.3	.39	15.4	N	VS	65.7	5	63.5	4-3/4	W	100	90 T	150 Q
SD 624	13947	59.5	31.3	25	74	1	74.2	1.56	15.4	S	60.3	.41	14.8	N	S	65.0	3	63.2	1-3/4	W	100	95	158 U
SD 625	13948	60.5	28.5	8	89	3	73.3	1.58	15.1	S	61.3	.41	14.4	N	S	64.2	3	62.5	2-1/2	W	110 SIC	90 SIC	156 U
SD 626	13949	59.5	30.3	17	79	4	73.7	1.50	14.8	S	60.2	.46	13.7	N	S	63.5	2	63.5	2-1/4	W	105 SIC	90	173 U

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 10
UNIFORM REGIONAL NURSERY SAMPLES
Havre, Montana

Variety or Sel. No.	C.I. No.	T.W. Kwt. 1/	Kernel Lg. Kwt.	Size Med. Sm.	Pot. Yld. %	Wht. Min. 2/ %	Kern. Pro. Char. 3/ %	Flr. Ext. 2/ %	Min @ 65%Ex. 2/ %	Flr. Pro. Char. 4/ %	Mlg. Per. 3/ %	Mix. Abs. 2/ %	Bake Abs. 2/ %	Dough Char. 6/ %	Crumb Color 7/ %	Crumb Grain 8/ %	Loaf Vol. 3/ cc.	Bake Eval. 3/ 	
Chris	13751	59.5	26.2	8	86	6	73.1	1.68	15.6	S	62.4	.47	15.4	N	63.2	4	105 SIC	90	173 S-Q
Crim	13465	59.0	28.6	19	77	4	73.8	1.70	15.6	S	62.4	.45	15.2	N	63.5	6	100 5-1/4	80 0	171 S
Justin	13462	58.5	29.0	16	78	6	73.5	1.78	16.5	S	62.1	.45	16.0	N	65.0	5	63.2 4	90	168 S
Lee	12488	59.5	31.0	26	70	4	74.1	1.71	15.2	S	59.6	.48	14.8	N	63.2	3	100 W	95	186 S-Q
Manitou	13775	59.5	28.0	3	94	3	73.0	1.71	16.3	S	61.8	.48	15.4	N	62.5	3	100 SIC	90	181 Q-U
Marquis	3641	56.5	21.3	2	87	11	72.6	1.93	15.1	Q	58.4	.52	14.5	N-S	61.9	5	61.9 3-3/4	M	105 C
Pembina	13332	59.5	26.0	12	85	3	73.5	1.69	15.4	S	60.6	.48	15.2	S-Q	62.5	5	62.5 4-1/4	M-S	105 SIC
Selkirk	13100	57.5	28.3	9	86	5	73.2	1.75	15.1	S	62.9	.44	14.7	N	64.4	4	62.8 3-1/4	M	105 SIC
Thatcher	10003	58.0	23.7	6	88	6	73.0	1.77	15.7	S	60.6	.48	15.1	N	63.2	4	63.2 2-3/4	M-S	105 SIC
III-54-30	13655	61.0	27.3	3	92	5	72.9	1.65	15.1	S	63.6	.40	14.8	VS	64.2	5	62.8 4-1/2	M-S	110 SIC
III-55-11	13773	61.5	35.1	34	87	1	74.4	1.76	15.5	VS	61.9	.44	15.3	N-S	64.7	5	63.2 3-1/2	M	110 80 10
III-58-57	13825	57.5	23.5	2	89	9	72.7	1.75	16.1	S	56.5	.53	15.6	S-U	65.7	5	63.5 3-1/4	M	100 90
III-59-9	13226	58.0	31.4	27	69	4	74.2	1.65	15.5	S	59.3	.47	14.8	N	65.0	6	63.2 4-3/4	M	105 80
61-107	13337	60.0	33.4	35	64	1	74.7	1.59	15.6	S	59.3	.43	15.4	N-S-Q	64.7	3	62.8 2-1/2	M	110 90 0
B60-82	13823	58.5	25.9	3	90	7	72.8	1.77	16.1	Q	57.7	.52	15.8	N-S-U	65.7	5	63.5 3-1/4	M	105 90 1
B61-89	13946	59.5	34.4	50	49	1	75.5	1.81	15.0	S	58.8	.49	14.5	N	66.3	5	66.4 4	M-S	110 95
B61-95	13986	59.0	26.5	5	90	5	73.0	1.74	16.0	S	58.7	.48	15.8	N	64.2	5	62.8 4-1/4	M-S	100 95
ND 60-54	13596	62.0	35.7	37	62	1	74.8	1.64	14.7	VS	62.1	.43	14.2	N	63.2	4	63.2 3-1/4	M	105 90
ND 264	13569	58.0	26.7	12	83	5	73.4	1.81	16.2	S	59.3	.51	15.4	N	65.7	6	63.6 4	M-S	100 95
ND 321	13952	58.5	30.9	21	74	5	73.8	1.87	15.6	S	59.1	.43	14.9	N	64.7	5	63.2 3-1/2	M-S	105 SIC
ND 363	13828	60.0	32.4	37	61	2	74.8	1.80	15.5	S	60.2	.44	14.8	N	64.2	5	62.8 3-1/2	M-S	100 80
ND 405	13779	57.5	29.3	12	85	3	73.5	1.80	15.5	S	60.0	.45	16.2	N	66.3	6	64.4 4-1/2	M	100 80
ND 442	13553	58.5	30.2	19	78	3	73.8	1.81	15.9	N	57.2	.45	14.9	N-S	66.6	7	64.8 5	M-S	105 85
ND 455	13954	60.5	31.5	34	65	1	74.7	1.83	16.7	S	58.1	.49	16.5	N	65.7	3	63.6 2-3/4	M	105 75
ND 455	13955	60.5	29.6	17	82	1	73.8	1.82	15.9	S	59.1	.45	15.0	N	65.0	4	63.2 2-3/4	M	105 90
ND 456	13956	60.0	32.4	36	62	2	74.7	1.79	15.6	S	61.9	.44	15.0	N	64.7	5	63.2 3-1/4	M-S	100 80
ND 457	13957	59.0	27.0	11	85	4	73.4	1.83	16.3	S	63.7	.43	15.6	N	64.7	5	63.2 3-1/2	W	95 85 T
SD 624	13947	59.0	28.2	9	90	1	73.4	1.74	15.8	S	62.6	.47	15.3	N	64.7	3	63.2 2-1/4	M	105 95
SD 625	13948	61.0	30.2	5	94	1	73.2	1.73	16.1	S	62.0	.46	15.4	N	66.2	2	62.8 1-3/4	W	105 SIC
SD 626	13949	59.5	29.0	10	89	1	73.5	1.68	15.8	S	60.2	.59	14.8	N	64.4	3	62.8 2-1/4	M	105 90

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 11
UNIFORM REGIONAL NURSERY SAMPLES
Blend of Williston, North Dakota and Sidney, Montana

Variety or Sel. No.	C. I. No.	T. W. 1/	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yield 2/	Wht. Min. Pro. Char. 2/	Kern. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. Pro. 2/	Mlg. Char. Per. 4/	Mlg. Abs. Pat. 2/	Mix. Abs. Pat. 2/	Bake Time 2/	Dough Char. 6/	Crumb Color 7/	Dough Crumb 6/	Crumb Grain Vol. 8/	Loaf Grain Vol. 8/	Bake Time 2/	Eval. 3/	1965 CROP	
Chris	13751	62.0	24.4	5	92	3	73.1	1.66	15.0	S-Q	62.4	.50	14.8	N	S	62.3	3	M-S	105	95	183	S	
Crim	13465	61.5	28.6	26	72	2	74.2	1.65	14.3	S	62.1	.49	13.8	N	S	63.5	5	M-S	110	90	171	S	
Justin	13462	62.0	30.2	20	78	2	73.9	1.77	15.4	S	61.9	.44	14.8	N	S	62.8	4	M-S	105	95	179	S	
Lee	12688	58.0	22.1	2	83	15	72.2	1.70	13.1	Q	58.2	.56	12.5	N	U	58.3	4	M-W	100	80	160	U	
Manitou	13775	61.0	25.1	6	91	3	73.2	1.65	15.3	S-Q	63.2	.54	14.9	N	Q	60.3	3	M-S	100	95	184	Q-S	
Marquis	3641	54.0	18.3	7	68	25	72.1	1.82	13.6	U	55.6	.59	13.0	N	U	58.1	2	M-S	105	90	159	U	
Pembina	13332	60.5	25.3	4	92	4	73.0	1.68	14.4	Q-S	59.8	.52	14.0	N	Q	58.7	10	M-S	105	90	172	Q-S	
Selkirk	13100	60.0	30.4	14	83	3	73.6	1.76	13.9	S	63.8	.56	13.4	U	Q	59.7	3	M-S	105	100	80	U	
Thacher	10003	60.0	22.1	2	89	9	72.7	1.74	13.3	U	61.1	.57	12.7	N	U	56.7	4	M-S	100	80	168	U	
II-34-30	13655	64.0	29.2	8	90	2	73.3	1.58	14.0	S	64.3	.41	13.6	N	VS	61.0	4	M-S	95	95	172	Q	
II-55-11	13773	63.0	34.6	36	63	1	74.8	1.66	14.7	S	62.1	.45	14.3	N	S	63.2	4	M-S	105	95	202	S	
II-58-57	13825	62.0	24.0	4	91	5	73.0	1.71	13.7	Q	60.0	.49	13.5	N	S	62.5	4	M-S	105	95	182	S	
II-59-9	13826	60.0	30.9	32	65	3	74.5	1.66	13.9	S	61.9	.48	13.4	N	S	61.9	5	M-S	105	80	174	S-Q	
61-107	13937	61.5	23.4	22	76	2	74.0	1.67	13.9	S	61.0	.49	14.2	N	S	60.7	4	M-S	100	90	177	Q	
B60-82	13823	62.0	27.7	4	92	4	73.0	1.66	14.3	S-Q	60.7	.56	14.1	N	Q-U	61.9	4	M-S	105	95	198	S	
B61-89	13946	60.5	31.9	41	57	2	75.0	2.13	14.7	S	61.0	.56	14.5	N	Q-U	65.0	4	M-S	105	95	176	S	
B61-95	13586	61.5	28.6	5	92	3	73.1	1.68	14.1	S-Q	59.6	.42	13.9	N	Q-S	61.9	5	M-S	105	90	197	S	
ND 60-54	13596	62.0	33.8	21	77	2	74.0	1.68	14.1	S	62.9	.43	13.5	N	VS	61.6	3	M-S	100	95	172	Q	
ND 264	13569	60.5	27.5	10	86	4	73.5	1.67	14.6	S-Q	59.6	.47	13.5	N	Q-S	62.3	5	M-S	105	100	177	S	
ND 321	13952	61.0	27.4	12	85	3	73.5	1.74	14.1	S	60.5	.47	13.2	N	S-Q	62.5	5	M-S	105	100	180	S	
ND 363	13828	61.0	29.0	26	72	2	74.2	1.85	14.8	S	63.3	.49	14.3	N	S	62.5	4	M-S	105	100	177	S	
ND 405	13779	60.5	30.3	21	78	1	74.0	1.71	15.3	S	63.8	.46	14.9	N	S	62.8	4	M-S	105	95	194	S	
ND 407	13953	62.0	31.2	31	67	2	74.5	1.74	14.8	S	60.0	.44	14.6	N	S	63.8	4	M-S	100	95	180	S	
ND 442	13954	62.5	32.3	30	69	1	74.5	1.80	16.1	S	62.1	.45	15.6	N	S	64.7	4	M-S	105	100	182	S-Q	
ND 455	13955	60.0	24.8	6	87	7	73.0	1.70	13.0	Q	63.2	.40	12.8	N	VS	61.0	4	M-S	105	100	166	Q	
ND 456	13956	61.5	28.8	8	89	3	73.3	1.69	13.6	S	61.2	.49	12.4	N	S-Q	60.3	4	M-S	105	95	161	Q	
ND 457	13957	62.0	28.8	27	81	2	74.3	1.80	14.2	S	64.0	.50	14.1	N	S	63.2	4	M-S	100	95	173	S	
SD 624	13947	61.5	30.0	13	85	2	73.6	1.70	14.4	S	63.2	.48	14.0	N	S	62.3	2	M-S	100	90	172	Q	
SD 625	13948	62.5	30.1	6	92	2	73.2	1.68	14.9	S	62.9	.46	14.8	N	S	62.5	2	M-S	105	95	175	U-Q	
SD 626	13949	61.5	29.8	14	83	3	73.6	1.67	14.4	S	62.1	.44	13.7	N	S	61.3	3	M-S	100	100	167	Q	

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.
3/ Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, SI - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 12
UNIFORM REGIONAL NURSERY SAMPLES
Casselton, North Dakota

Variety or Seri. No.	C. I. No.	T. W. Rwt. 1/	1000 Kernel Lg. Med. Sm.	Kernel Size 2/ 3/ 2/	Pot. Min. 2/ 3/ 2/	Wht. Pro. Char. 2/ 3/ 2/	Wht. Min. 2/ 3/ 2/	Kern. Ext. 2/ 3/ 2/	Flr. Ext. 2/ 3/ 2/	Min. @ 65% Ex. 2/ 3/ 2/	Flr. Ext. 2/ 3/ 2/	Mfg. Char. 2/ 3/ 2/	Mfg. Per. 2/ 3/ 2/	Mix. Abs. 2/ 3/ 2/	Mix. Pat. 2/ 3/ 2/	Mix. Abs. 2/ 3/ 2/	Bake Time min.	Dough Char. 2/ 3/ 2/	Crumb Color 2/ 3/ 2/	Crumb Grain 2/ 3/ 2/	Loaf Grain 2/ 3/ 2/	Bake Eval. 2/ 3/ 2/				
Chris	13751	62.0	27.0	20	78	2	73.9	1.79	13.4	S-Q	61.1	.47	12.5	N	S	60.3	3	60.3	4-3/4	M	105	95	164	S-Q		
Crim	13465	61.0	31.0	56	43	1	75.8	1.82	12.7	S	60.1	.45	12.1	N	S	63.5	7	63.5	4-3/4	M-S	110	SIC	95	168	S	
Justin	13462	60.5	29.7	33	66	1	74.6	1.82	14.8	S	60.2	.46	14.0	N	S	63.2	7	63.2	6	M-S	100	80	0	168	S	
Lee	12488	60.5	28.5	17	82	1	73.8	1.75	13.1	S-Q	58.5	.47	12.4	N	Q	61.6	8	61.6	6	M	110	SIC	95	168	S	
Manitou	13775	61.0	26.2	13	85	2	73.6	1.75	13.7	Q	58.2	.53	12.6	N	U	60.0	4	60.0	3-1/2	M	110	SIC	90	166	Q	
Marquis	3641	58.0	23.6	3	86	11	72.6	1.88	11.9	U	58.0	.49	10.9	N	Q-U	58.1	3	58.1	3	W	110	C	90	SIT	156	U
Pembina	13332	59.0	27.4	12	85	3	73.5	1.82	13.0	S-Q	56.8	.50	12.1	N	U	57.5	10	57.5	7-1/2	M-S	105	SIC	90	177	U	
Selkirk	13100	59.5	31.7	39	60	1	74.9	1.83	13.4	S	61.5	.46	12.6	N	S	61.0	4	61.0	4	M	105	SIC	90	SIT	165	S
Thatcher	10003	60.0	24.4	3	94	3	73.0	1.77	12.8	Q	59.6	.53	11.8	U	U	59.3	5	59.3	3-3/4	M	100	90	0	164	Q	
II-54-30	13655	64.0	31.1	21	78	1	74.0	1.78	11.8	S	62.3	.43	11.0	N	S	59.3	6	59.3	3-3/4	M	110	BC	95	162	Q	
II-55-11	13773	63.5	36.0	60	39	1	76.0	1.79	13.2	VS	60.1	.46	12.7	N	S	60.7	7	60.7	5	M-S	110	5	95	179	S-Q	
II-58-57	13825	60.5	25.1	16	81	3	73.7	1.78	12.3	Q*	56.0	.51	11.8	N-S	U	61.9	6	61.9	4-1/2	W	100	90	0	172	Q	
II-59-9	13826	61.0	34.5	66	33	1	76.3	1.72	12.5	VS*	56.9	.47	11.4	N	Q	61.0	7	61.0	5	W	100	90	0	170	Q	
61-107	13937	62.0	37.0	60	39	1	76.0	1.71	13.1	VS*	56.7	.48	12.3	N	Q	60.7	5	60.7	3-1/4	W	110	90	0	173	Q	
B61-82	13823	62.0	29.8	15	82	3	73.6	1.80	12.1	Q	57.7	.50	11.4	N	U	59.3	6	59.3	4-1/4	W	105	90	0	173	U	
B61-89	13946	60.5	34.5	67	32	1	76.3	1.85	13.3	VS	55.3	.55	12.5	N	U*	64.2	4	62.5	3-1/2	M	105	SIC	90	177	S	
B61-95	13586	62.5	31.2	23	76	1	74.1	1.85	12.0	S*	56.3	.46	11.3	N-S	U*	58.1	7	58.1	5	M	105	90	0	175	U	
ND 60-54	13596	61.0	34.8	27	72	1	74.3	1.77	12.0	S	56.0	.50	12.5	N	U*	61.6	9	61.6	3-1/4	W	110	C	85	S10	172	Q
ND 624	13589	61.5	31.1	36	63	3	74.8	1.82	13.2	S	59.4	.48	12.3	N	U*	64.4	6	62.5	3-3/4	W	105	SIC	90	T	158	U
ND 321	13952	60.5	31.2	29	68	3	74.3	1.85	13.1	S	55.8	.47	12.3	N-S	U*	61.9	6	61.9	4-1/2	W	100	SIC	95	169	Q	
ND 363	13828	61.0	31.6	39	60	1	74.9	1.85	13.5	S	59.3	.48	12.7	N	Q	61.9	7	61.9	5-1/4	W	105	80	I	167	Q	
ND 405	13779	60.0	36.8	67	32	1	76.3	1.77	13.2	VS	57.0	.48	11.1	N	Q*	59.7	9	59.7	5-1/2	W	90	80	0	172	U	
ND 407	13953	62.0	36.5	58	41	1	75.9	1.81	12.9	S	56.5	.46	12.3	N	U*	61.6	9	61.6	5-3/4	M	105	SIC	80	I	176	S-Q
ND 442	13956	61.0	34.0	55	44	1	75.7	1.93	14.8	S	57.0	.48	14.6	U	U*	66.3	7	64.4	4-1/4	M	100	SIC	90	T	183	S-Q
ND 455	13955	62.0	33.0	67	32	1	76.3	1.73	13.2	VS	57.0	.48	12.1	N	U*	61.3	7	61.3	5	M	95	80	I	173	Q	
ND 456	13956	62.0	35.7	55	44	1	75.7	1.76	13.5	S*	60.2	.41	12.8	N	S	61.9	8	61.9	5-1/4	M	105	SIC	80	I	172	S-Q
ND 457	13957	62.0	31.5	56	43	1	75.8	1.84	13.4	S	60.6	.44	12.4	N	S*	61.9	5	61.9	4-1/4	M	105	80	0	171	S	
SD 624	13947	61.0	34.6	63	36	1	76.1	1.83	12.5	VS	59.1	.48	11.8	N	S-Q	60.7	3	60.7	2-3/4	M	110	90	0	168	U	
SD 625	13948	62.0	33.2	29	70	1	74.4	1.71	13.0	S	58.9	.50	12.7	N	Q-U	62.5	4	62.5	3-1/4	W	105	C	90	I	147	U
SD 626	13949	61.0	33.3	53	45	2	75.6	1.76	12.7	S	60.6	.49	12.2	N	S	61.0	4	61.0	3-1/4	M	100	90	0	169	S-Q	

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

* Immature kernels.

TABLE 13
UNIFORM REGIONAL NURSERY SAMPLES
D. C. Chapman, North Dakota

Variety or Sel. No.	C. I. No.	T. W. 1/	1000 Krt.	Kernel Lg. Med.	Size Sm.	Pot. Wh.	Wht. Min. 2/	Kern. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ext. 2/	Flr. Pro. Char. 2/	Mlg. Abs. 2/	Mlg. Abs. 2/	Bake Abs. 2/	Mix. Abs. 2/	Dough Char. 2/	Crumb Color 2/	Loaf Grain Vol. 2/	Bake Time 2/	Crumb Grain Vol. 2/	Bake Eva. 2/	cc.	
Chris	13751	61.0	27.7	12	87	1	73.6	1.59	15.9	S	63.4	.45	15.0	N	S	63.8	3	63.8	2-3/4	M	105 S1C	90	171 Q
C. Crim	13465	61.0	30.4	64	15.2	S	74.7	1.61	15.2	S	62.3	.45	14.9	N	S	65.0	5	61.6	4-1/2	M	105	90	183 S
Justin	13462	60.0	31.2	29	70	1	74.4	1.69	16.1	S	62.1	.43	15.9	N	S	65.7	5	61.6	3-1/2	M	100	70	184 S-Q
Lee	12488	57.5	25.0	4	90	6	72.9	1.65	14.0	U	59.7	.46	13.8	N	Q-U	61.9	5	61.9	4-3/4	M	95 S1C	95	175 S
Manitou	13775	61.0	26.3	10	89	1	73.5	1.64	15.9	Q	62.1	.46	15.5	S	S	62.3	3	62.3	2-3/4	M-S	105	70	175 Q
Maquis	3641	58.5	29.7	21	77	2	74.0	1.66	15.0	S	61.8	.47	14.7	N	S-Q	62.5	4	62.5	3-1/2	W	105	90	161 Q
Pembina	13332	59.0	26.0	5	93	2	73.2	1.63	14.9	Q	59.7	.46	14.8	N	Q-U	61.3	9	61.3	6-3/4	S	100	90	180 S
Seal Kirk	13100	57.5	31.2	18	81	1	73.9	1.63	14.4	S	62.6	.45	14.6	N	S	63.2	4	63.2	4	W	100	90	175 Q-U
Thatcher	10003	58.5	22.5	2	93	5	72.9	1.60	14.2	U	61.4	.44	13.8	Q	60.7	4	60.7	4	M-S	100	90	174 Q	
III-54-30	13655	62.5	31.5	16	83	1	73.8	1.54	14.8	S	61.8	.39	14.5	N	VS	61.0	3	61.0	3-1/2	M-S	100 BC	80	174 Q
III-55-11	13773	63.0	36.8	62	37	1	76.1	1.56	15.1	VS	59.7	.45	14.5	N	Q	64.2	4	62.5	3-1/4	M-S	105	80	178 S
III-58-57	13825	59.5	24.3	6	91	3	73.2	1.63	15.1	S-Q	57.0	.52	15.0	N	U	64.7	4	64.7	3-3/4	M	105	90	184 S
III-59-9	13826	59.5	34.2	53	46	1	75.6	1.53	15.1	VS	59.7	.47	14.0	N	Q	64.2	5	62.5	5	M	105	85	199 S
61-107	13937	61.0	35.5	48	51	1	75.4	1.50	15.1	S	57.3	.47	14.5	N	U-Q	62.8	3	62.8	3-1/4	M	105 S1C	85	178 S
B60-82	13823	61.5	29.2	10	88	2	73.4	1.50	15.1	S-Q	59.5	.46	14.7	N	Q	63.2	3	63.2	3-1/2	M	100	90	189 S
B61-89	13946	60.5	35.8	62	37	1	76.1	1.62	15.5	VS	58.9	.48	14.8	N	Q-U	64.4	4	62.3	3-1/2	M	110 S1C	80	192 S
B61-95	13586	61.0	29.6	16	82	2	73.7	1.55	15.2	S	58.3	.45	15.1	N	Q-U	63.2	4	63.2	3-3/4	M	100	90	201 S
ND 54	13596	61.5	34.6	37	62	2	74.8	1.59	14.9	S	60.2	.50	14.8	N	U	61.6	3	61.6	3-1/2	M	105 S1C	95	172 S
ND 264	13569	57.5	28.3	20	78	2	73.9	1.71	15.8	S	58.3	.54	14.6	N	U	63.2	6	63.2	4-3/4	M	105	90	170 S
ND 321	13952	58.0	30.2	29	69	2	74.4	1.67	15.0	S	57.3	.51	14.8	N	U	62.5	4	62.5	4-1/4	M	105 S1C	80	177 S
ND 363	13828	60.0	33.1	58	41	1	75.9	1.68	15.3	S	59.2	.55	14.5	N	U	62.5	4	62.5	3-1/2	M	105 S1C	80	184 S
ND 405	13779	58.5	34.1	46	53	1	75.3	1.68	15.6	S	59.8	.48	14.8	N	Q-S	62.5	3	62.5	4	W	100 S1C	75 0	182 U
ND 407	13953	60.5	33.8	54	45	1	75.1	1.65	15.4	S	55.8	.53	15.1	N-S	U	63.2	4	63.2	3-3/4	M	105	80	182 Q
ND 442	13954	60.5	33.0	51	48	1	75.5	1.71	16.1	S	57.6	.57	15.0	N-S	U	64.2	4	62.5	2-3/4	M	105	80	182 Q-U
ND 455	13955	60.0	29.8	23	75	2	74.1	1.63	13.9	S	58.0	.46	13.3	N	Q-U	60.7	3	60.7	3-3/4	W	105	90	182 Q-U
ND 456	13956	60.0	33.4	34	65	1	74.7	1.62	14.7	S	59.2	.40	13.2	N	Q	60.7	4	60.7	4	M	110 S1C	90	180 Q
ND 457	13957	61.0	31.5	49	50	1	75.4	1.69	15.3	S	60.7	.45	14.0	N	S-Q	62.3	4	62.3	3-1/2	M	105	75 0	173 Q-S
SD 624	13947	60.5	31.2	30	69	1	74.5	1.68	15.5	S	60.4	.49	14.8	N	Q-U	63.8	2	60.5	3-1/2	W	110 S1C	95	164 U
SD 625	13948	62.0	33.9	24	80	1	73.9	1.67	15.2	S	61.7	.45	15.0	N	Q-U	62.3	1-3/4	W	110 C	95	164 Q-U		
SD 626	13949	61.0	33.4	35	64	1	74.7	1.67	15.0	S	59.9	.48	14.9	N	Q-U	61.0	2	61.0	2	W	105 S1C	85	175 Q

11/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/21 14% moisture basis.

S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Normal. H - Hard. S - Soft.

N = normal, $n_1 = n_{100}$, $\beta = 30^\circ$. Refer to reference mixogram for numerical curve pattern.

B	Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
C	Creamy, G - Gray, D - Dull, S1 - Slight, V - Very, B - Bright, W - White.
O	Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.
W	

TABLE 14
UNIFORM REGIONAL NURSERY SAMPLES
Fargo, North Dakota

1965 CROP

Variety or Sel. No.	C.I. No.	T.W. Kwt.	1000 Lg.	Kernel Med.	Size Sm.	Pot. Yld.	Wht. 2/ 2/	Kern. Pro. Char. 2/ 2/	Wht. Min. 2/ 2/	Flr. Ext. 2/ 2/	Min. @ 65% Ex. 2/ 2/	Flr. Pro. 2/ 2/	Mig. Char. 4/ 4/	Dough Abs. 2/ 2/	Mix. Abs. 2/ 2/	Bake Time 2/ 2/	Crumb Char. 2/ 2/	Crumb Color 2/ 2/	Dough Grain 2/ 2/	Loaf Grain 2/ 2/	Bake Vol. 2/ 2/	Bake Eval. 2/ 2/	cc.	
Chris	13751	61.5	28.1	24	75	1	74.2	1.62	15.5	S	60.8	.42	14.3	N	S-U	61.0	3	61.0	2-1/2	M	105	90	175	Q
Crim	13465	61.0	29.7	35	59	2	74.9	1.78	13.7	S	59.8	.50	13.3	N	M-S	56.7	6	56.7	5-1/4	M-S	110	90	162	Q
Justin	13462	61.0	29.8	35	64	1	74.7	1.86	15.3	S	61.2	.41	13.2	N	M-S	61.9	6	61.9	5	M-S	105	90	185	S
Lee	12488	60.0	28.8	19	77	4	73.8	1.92	13.2	S-Q	58.4	.50	13.1	N	Q-U	60.3	6	60.3	5-3/4	M	110	90	167	S
Manitou	13775	60.5	26.7	20	79	1	74.0	1.73	15.6	S-Q	62.2	.44	13.0	N	S	59.0	5	59.0	3-1/2	M	110	90	182	Q
Marquis	3641	57.0	21.2	4	78	18	72.3	1.96	13.2	U	55.8	.52	13.0	N	U	58.7	3	58.7	3	W	110	80	173	U
Pembina	13332	60.5	27.4	17	80	3	73.7	1.92	13.8	Q	59.6	.57	12.8	N	U	57.5	10	57.5	6-1/4	M-S	105	95	172	Q
Selkirk	13100	58.0	28.6	17	80	3	73.7	2.07	14.3	S	61.1	.53	13.2	N	U	61.0	3	61.0	3	W	110	90	166	Q
Thatcher	10003	59.5	21.5	2	89	9	72.7	1.86	14.5	Q	61.2	.52	14.2	N	U	59.0	4	59.0	3-1/4	M	110	80	178	Q
II-54-30	13655	63.5	31.4	27	71	2	74.3	1.61	14.2	S	62.5	.37	13.0	N	VS	59.3	5	59.3	3-1/2	M-S	105	90	171	Q-S
II-55-11	13773	63.5	34.5	46	53	1	75.3	1.75	14.2	S	61.5	.42	13.3	N	S	61.9	3	61.9	3	M-S	110	90	180	S
II-58-57	13825	60.5	23.3	5	88	7	72.9	1.72	14.2	U	57.2	.45	12.7	N-S	U	62.8	7	62.8	5-1/2	M	100	90	185	S
II-59-9	13826	60.0	33.4	52	47	1	75.6	1.63	14.9	S	60.6	.41	14.0	N	VS	62.5	7	62.5	5	M-S	90	80	190	S-Q
61-107	13937	63.0	38.5	66	33	1	76.3	1.54	14.2	VS	59.6	.42	13.9	N	S-Q	62.3	4	62.3	3-1/4	M	110	90	184	S
B60-82	13823	61.5	28.3	8	88	4	73.2	1.62	14.1	S	59.1	.47	13.9	N	Q-S	61.6	5	61.6	4	M	105	95	193	S
B61-89	13946	61.0	32.5	49	50	1	75.4	1.74	14.0	S	59.1	.48	13.6	N	Q	63.5	5	63.5	4-1/2	M	110	95	183	S
B61-95	13586	62.5	31.3	25	73	2	74.2	1.60	13.7	S	58.9	.43	13.5	N	Q	60.3	5	60.3	4-1/4	M	110	90	189	S
ND 60-54	13596	63.0	38.2	55	44	2	75.7	1.66	14.0	VS	61.1	.46	13.6	N	S	61.0	3	61.0	2-1/2	M	110	95	164	Q
ND 264	13569	59.5	26.4	8	87	5	73.2	1.90	14.2	S	59.1	.47	13.6	N	Q-S	62.5	4	62.5	3-3/4	W	100	95	158	U
ND 321	13952	59.5	29.0	13	84	3	73.5	1.77	14.6	S	58.4	.42	13.4	N	Q	61.9	6	61.9	5	M-S	105	95	176	S
ND 363	13828	62.0	33.2	53	46	1	75.6	1.79	14.8	VS	60.4	.42	13.7	N	S	61.9	5	61.9	4	M-S	95	80	178	S
ND 405	13779	61.5	36.4	59	41	0	76.0	1.70	15.4	VS	60.9	.38	14.1	N	VS	65.7	8	63.5	5-1/2	M-S	105	95	175	S
ND 407	13953	63.0	32.5	32	67	1	74.6	1.59	14.3	S	58.7	.41	13.9	N	Q-S	65.0	7	63.2	5	M	100	80	175	S
ND 442	13954	61.5	31.3	23	76	1	74.1	1.81	15.1	S	59.4	.43	13.9	N	Q-S	66.3	7	62.5	4-1/2	M-S	105	95	180	S
ND 455	13955	62.0	30.6	37	62	1	74.8	1.73	14.7	S	60.6	.40	14.5	N	S	64.2	6	62.5	4-1/4	M	105	95	172	S
ND 456	13956	62.5	32.8	34	65	1	74.7	1.71	14.6	S	62.0	.36	13.9	N	VS	62.5	6	62.5	4	M	105	95	160	S-Q
ND 457	13957	62.0	28.6	26	72	2	74.2	1.77	14.9	S	62.0	.39	14.2	N	VS	63.2	5	63.2	3	M	110	90	188	S
SD 624	13947	62.0	34.2	48	51	1	75.4	1.50	15.0	VS	60.6	.42	13.9	N	VS	62.5	2	62.5	2	W	110	90	154	U-Q
SD 625	13948	62.5	32.6	30	69	1	74.5	1.73	14.4	S	60.3	.40	14.1	N	VS	64.2	3	62.5	3-1/2	M	100	90	180	S
SD 626	13949	61.5	33.2	47	52	1	75.3	1.73	14.1	VS	59.8	.50	12.9	N	Q	60.7	4	60.7	2-3/4	W	110	90	171	Q-U

1/
2/
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8/

Clean dry - subtract 1#/bu. for dockage free T.W.

1/ 14% moisture basis.

S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

N - Normal, H - Hard, S - Soft.

Refer to reference mixogram for numerical curve pattern.

B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 15
UNIFORM REGIONAL NURSERY SAMPLES
Minot, North Dakota

Variety or Sel. No.	C.I. No.	T.W. Kwt.	Kernel Lg.	Size Med.	Pot. Yld.	Wht. Min. 2/ 2/	Kern. Pro. Char. 3/ 3/	Flr. Ext. 65% 2/ 2/	Min. G. Pro. Char. 4/ 4/	Flr. Mlg. Per. 3/ 3/	Mix. Abs. 2/ 2/	Bake Time min. 5/ 5/	Dough Char. 6/ 6/	Crumb Color 7/ 7/	Crumb Grain 8/ 8/	Loaf Vol. 9/ 9/	Bake Eva. 3/ 3/	cc.
Chris	13751	62.5	27.3	20	78	2	73.9	1.79	15.3	S-Q	62.5	.45	15.0	N	S	66.0	4	63.5 3-1/4
Grim	13465	62.5	32.1	50	48	2	75.4	1.76	13.3	S	62.3	.45	12.6	N	S	66.2	6	62.5 4-3/4
Justin	13462	61.5	29.9	30	67	3	74.4	1.89	15.2	S	62.6	.45	14.6	N	S	64.7	5	64.7 3-3/4
Lee	12488	61.0	26.6	11	85	4	73.4	1.69	12.9	Q	61.1	.50	12.7	N	Q	61.0	4	61.0 3-1/4
Manitou	13775	62.5	28.1	23	76	1	74.1	1.84	15.3	S-Q	64.4	.50	14.8	N	Q	63.2	3	63.2 2-1/2
Marquis	3641	60.5	23.7	5	85	10	72.8	1.82	12.2	Q-U	60.4	.48	11.7	N	Q	58.7	2	58.7 2-1/4
Pembina	13332	61.5	27.3	12	84	4	73.4	1.82	13.0	S-Q	59.6	.50	12.4	N	U	58.1	10	58.1 5-1/4
Selkirk	13100	60.5	30.3	25	71	4	74.1	1.86	13.7	S	64.3	.45	12.5	S	S	61.9	3	61.9 3
Thatcher	10003	60.5	21.7	2	90	8	72.7	1.79	13.2	Q-U	62.8	.51	12.8	N	Q-U	60.3	4	60.3 3-1/2
III-54-30	13655	64.5	31.2	25	73	2	74.2	1.63	14.0	S	65.7	.43	13.6	N	S	62.5	3	62.5 2-3/4
III-55-11	13773	64.5	37.3	59	39	2	75.9	1.69	14.5	VS	62.8	.47	14.3	N	S	66.7	5	62.8 3-1/4
III-58-57	13225	60.5	21.0	3	87	10	72.7	1.72	14.4	Q-U	58.9	.47	13.8	N	U-Q	62.5	5	62.5 3-1/2
III-59-9	13826	61.5	33.2	47	50	3	75.2	1.57	14.2	S	63.0	.45	13.7	S	S	63.8	6	63.8 4-1/4
61-107	13937	62.0	37.0	47	50	3	75.2	1.56	15.2	S	60.6	.45	15.0	N	S	63.2	3	63.2 2-3/4
B60-82	13823	63.0	29.7	15	82	3	73.6	1.62	13.8	S	61.4	.45	13.6	N	S	62.5	4	62.5 3
B61-89	13846	61.5	32.5	53	45	2	75.6	1.69	14.6	S	62.3	.50	14.1	N	S-Q	63.8	3	63.8 3-1/4
B61-95	13886	64.0	33.0	35	64	1	75.0	1.64	14.6	S	59.1	.43	14.0	N	Q	63.2	4	62.5 3-1/4
ND 60-54	13396	62.5	55.0	42	55	3	74.0	1.65	14.7	S	63.8	.42	14.5	N	S	62.5	3	62.5 2-3/4
ND 624	13569	61.0	29.1	15	81	4	73.6	1.63	15.0	S	62.0	.45	14.0	N	S	66.4	5	66.4 3-3/4
ND 321	13352	61.5	29.7	18	79	3	73.8	1.64	14.5	S	63.3	.43	13.7	N	S	63.5	5	63.5 4
ND 363	13828	62.0	32.9	54	45	1	75.7	1.73	16.4	S	64.4	.43	15.6	N	S	67.0	5	65.0 3-1/2
ND 405	13779	61.0	34.7	47	51	2	75.3	1.62	15.8	S	64.3	.44	15.6	N	S	66.0	4	63.8 3-1/4
ND 407	13953	63.5	35.3	62	37	1	74.7	1.59	15.7	VS	61.2	.38	14.9	N	VS	65.7	4	63.5 3
ND 442	13954	62.0	31.3	34	65	1	74.7	1.82	17.3	S	61.8	.44	17.2	S	S	70.3	7	66.3 4
ND 455	13955	61.5	28.4	32	65	3	74.5	1.63	15.3	S	62.2	.44	14.8	N	S	66.0	5	63.8 3-3/4
ND 456	13956	62.0	30.3	30	67	3	74.4	1.66	14.6	S	64.6	.35	13.9	N	VS	63.8	4	63.8 4
ND 457	13957	63.5	31.3	46	51	3	75.2	1.71	14.7	S	64.9	.41	14.2	N	S	64.2	4	62.5 3
SD 624	13947	62.5	33.7	44	53	3	75.1	1.71	15.2	S	62.7	.46	14.9	N	S	65.0	3	63.2 2
SD 625	13948	62.5	32.3	27	71	2	74.3	1.64	15.7	S	64.9	.44	15.5	N	S	66.6	3	66.7 2
SD 626	13949	62.5	34.1	45	52	3	75.1	1.67	15.0	S	64.6	.42	14.4	N	S	64.2	3	62.5 2

1/ Clean dry - subtract 1#/bu. for dockage free T.W.
2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.
4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
C - Creamy, G - Gray, D - Doll, SI - Slightly, V - Very, B - Bright, W - White.
7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 16
UNIFORM REGIONAL NURSERY SAMPLES
Highmore, South Dakota

Variety or Set. No.	C. I. No.	T. W. 1/	1000 Kernels	Kernel Size Lg. Med. Sm.	Pot. Yld. 2/	Wht. Min. 2/	Kern. Pro. 2/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. 65% Ex. 2/	Mig. Pro. Char. 2/	Mig. Per. 2/	Mix. Pat. 2/	Mix. Abs. 2/	Bake Time 2/	Dough Char. 2/	Crumb Color 2/	Crumb Grain Vol. 8/	Loaf Grain Vol. 8/	Bake Eval. 3/
Chris	13751	61.5	25.8	17	80	3	73.7	1.85	16.2	S	61.7	.55	15.8	N	S	64.4	3	62.4	2-3/4	M
Crim	13465	60.5	26.6	10	87	3	73.4	2.01	15.3	S	61.2	.57	14.6	N	S	65.7	3	63.6	4-1/4	M
Justin	13462	60.5	29.0	14	82	4	73.5	1.96	15.9	S	60.8	.52	15.2	N	S	64.7	5	63.7	3-3/4	M
Lee	12488	59.5	25.7	8	86	6	73.1	1.99	15.6	S	59.2	.58	14.9	N	Q-S	64.7	4-1/4	64.7	4-1/4	M-S
Manitou	13775	59.5	23.5	7	89	4	73.2	1.89	16.5	S	61.1	.55	15.9	N	S	62.5	3	62.5	2-3/4	M
Marquis	3641	54.0	18.7	1	82	17	72.2	2.15	14.1	U	56.5	.62	13.2	N-S	U	60.3	3	60.3	3	M
Pembina	13332	57.5	24.0	4	89	7	72.9	1.96	16.0	S-Q	59.7	.60	15.6	N	Q	67.3	7	65.3	5-1/4	S
Sekirk	13100	54.5	24.3	3	87	10	72.7	2.09	16.4	Q-S	60.4	.60	16.2	N	S-Q	67.0	4	65.3	3	M
Thatcher	10003	59.0	20.4	2	83	15	72.4	2.03	15.2	Q-S	60.0	.58	14.5	N	S	64.2	4	64.2	3-1/4	M
II-54-30	13655	62.5	29.2	5	89	6	73.0	1.87	15.4	S	62.2	.48	14.4	N	VS	62.3	4	62.3	3-3/4	M
II-55-11	13773	62.0	35.1	42	55	3	75.0	1.85	15.4	VS	61.0	.48	14.5	N	S	62.8	4	62.8	3-3/4	M
II-58-57	13825	58.0	24.6	15	78	7	73.4	1.88	15.8	S	57.3	.56	14.7	N-S	Q	64.4	5	64.4	3-3/4	M-S
II-59-9	13826	60.0	32.3	35	62	3	74.6	1.87	15.5	S	59.7	.57	15.0	N	S	67.7	4	67.7	3-3/4	S
61-107	13937	61.5	33.9	29	69	2	74.4	1.88	16.3	S	58.9	.59	16.0	N	S-Q	64.2	3	64.2	2-1/2	M
B6-82	13823	60.0	26.2	7	86	7	73.0	1.98	15.4	S	59.0	.55	14.9	N	S	63.2	3	63.2	3-1/4	M-S
B61-89	13946	58.0	30.6	40	56	4	74.8	2.06	15.6	S	57.8	.59	14.7	N	Q	65.3	5	65.3	5	M-S
B6-95	13586	61.5	27.4	10	83	7	73.2	1.88	15.1	S	57.2	.53	14.7	N	Q	61.0	5	65.3	5-3/4	M-S
ND 60-54	13596	62.0	31.7	20	77	3	73.9	1.89	15.9	S	60.3	.55	15.4	N	S	63.5	3	63.5	3	M-S
ND 264	13569	60.5	29.7	32	65	3	74.5	1.98	16.5	S	59.0	.56	15.0	N	S	64.7	4	65.7	4-3/4	M-S
ND 321	13952	57.0	26.5	10	83	7	73.2	2.12	16.6	S	58.0	.55	15.7	N	S	65.7	6	65.7	4-3/4	M-S
ND 363	13828	60.5	31.3	37	60	3	74.7	1.99	15.6	S	60.1	.50	14.6	N	S	64.4	4	64.4	3-1/4	M-S
ND 405	13779	59.0	33.8	30	67	3	74.4	2.11	17.2	S	60.4	.49	16.2	N	S	65.3	4	65.3	3-3/4	M
ND 407	13953	60.0	31.7	32	65	3	74.5	2.03	16.5	S	57.3	.50	15.8	N	S	66.3	6	64.4	4-3/4	M-S
ND 442	13954	60.5	31.9	30	68	2	74.4	2.07	17.0	S	59.2	.56	16.2	N	S	67.0	4	65.3	3	M
ND 455	13955	60.0	27.0	14	83	3	73.6	2.02	15.8	S	59.7	.51	14.3	N	S	64.2	4	64.2	4-1/2	M
ND 456	13956	61.0	29.7	17	80	3	73.7	2.07	16.0	S	60.8	.49	14.7	N	VS	64.2	4	64.2	3-3/4	M
ND 457	13957	60.5	28.6	30	67	3	74.4	2.03	15.9	S	62.2	.46	14.9	N	VS	63.5	4	63.5	3-3/4	M-S
SD 624	13947	60.0	31.4	23	74	3	74.0	2.03	16.9	S	59.9	.57	16.3	N	S	64.2	2	64.2	1-3/4	W
SD 625	13948	63.0	31.0	15	83	2	73.7	1.83	16.1	S	60.5	.48	15.4	N	VS	64.2	2	64.2	2	W
SD 626	13949	60.5	30.2	13	84	3	73.5	1.93	16.2	S	58.5	.45	14.8	N	S	62.8	2	62.8	2	W

1/ Clean dry - subtract 14% moisture basis.

2/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

3/ N - Normal, H - Hard, S - Soft.

4/ Refer to reference mixogram for numerical curve pattern.

B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, W - White.

O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 17
UNIFORM REGIONAL NURSERY SAMPLES
Watertown, South Dakota

1965 CROP																							
Variety or Sel. No.	C. I. No.	T. W. 1/	1000 Kwt.	Kernel Lg.	Size Med.	Pot. Sm.	Wh. Yld.	Wh. Min. 2/	Wh. Pro. 2/	Kern. Char. 3/	Flr. Ext. 2/	Min. @ 6%Ex. 2/	Flr. Pro. 4/	Mfg. Char. 2/	Mix. Pat. 2/	Bake Abs. 2/	Mix. Time 2/	Dough Abs. 2/	Crumb Char. 6/	Crumb 7/	Loaf Grain 8/	Loaf Vol. 8/	Bake Eval. 3/
Chris	13751	61.5	25.6	14	84	2	73.6	1.63	15.9	S	62.3	.49	15.7	N	S	63.8	4	63.8	3	M-S	110 SIC	90	183 Q-S
Crim	13465	57.0	23.0	5	89	6	73.0	1.79	15.6	S	60.0	.53	14.6	N	S-Q	65.7	8	65.7	9-1/2	M	100	95	174 S
Justin	13462	58.0	25.3	10	86	4	73.3	1.89	17.1	S	61.4	.46	16.1	N	S	65.7	7	63.6	5	M-S	100	90	182 S
Lee	12488	50.0	17.2	0	67	33	71.4	1.90	14.7	U	55.2	.52	13.7	N-S	U	61.0	7	61.0	6	M	100 SIC	90	187 Q-S
Manitou	13775	59.0	24.3	7	90	3	73.2	1.75	16.2	S	62.6	.48	15.0	N	S	64.2	4	64.2	3	M-S	105 SIC	80	179 Q-S
Marquis	3641	50.5	15.1	1	55	43	70.2	2.05	14.7	U	52.9	.56	12.9	N-S	U	63.2	4	63.2	3-1/4	M-S	105 C	95	180 Q-S
Pembina	13332	56.5	20.4	3	87	10	72.7	1.76	15.1	Q	59.5	.48	14.1	N	S-Q	63.2	10	63.2	9	M-S	100 SIC	80	191 S-Q
Se Kirk	13100	54.0	22.7	3	87	10	72.6	1.86	15.8	Q	61.4	.47	15.0	N	S	64.7	6	62.8	3-3/4	M-S	100 SIC	90	178 S-Q
Thatcher	10003	54.5	18.1	2	78	20	72.1	1.92	15.1	U	59.8	.50	14.1	N	S-Q	62.5	5	62.5	3-3/4	M-S	105 C	95	186 S-Q
III-54-30	13655	63.0	27.9	4	91	5	73.0	1.71	15.5	S	63.8	.38	14.5	N	VS	64.2	5	62.4	3-1/4	M-S	110 SIC	90	196 S-Q
III-55-11	13773	62.5	35.2	48	49	3	75.3	1.71	15.1	VS	63.5	.41	14.8	N	VS	65.7	5	63.6	3-1/2	M-S	105	100	190 S-Q
III-58-57	13825	56.0	21.0	8	79	13	72.8	1.86	16.6	Q	60.0	.41	16.1	N	S	66.6	5	64.8	5-1/4	M-S	100	80	200 Q-S
III-59-9	13826	57.0	27.4	13	82	5	73.4	1.74	16.2	S	64.0	.50	15.3	S	S	65.7	7	63.6	5-1/4	M-S	95	95	198 S
61-107	13937	60.0	30.7	13	83	4	73.5	1.89	15.9	VS	63.3	.48	15.2	N	S	63.8	5	63.8	4	M-S	100 W	95	190 S
B60-32	13823	60.0	25.5	12	81	7	73.3	1.75	15.8	S	62.6	.48	15.1	N	S	64.2	5	62.4	3-1/2	M-S	95	80	192 Q
B61-89	13946	56.5	26.3	17	77	6	73.6	1.99	16.5	S	61.4	.51	15.7	N	S	67.9	6	64.0	4-3/4	M-S	105	90	212 S
B61-95	13586	62.0	26.7	7	87	6	73.5	1.66	15.6	S	61.1	.43	14.9	N	S	65.7	5	63.6	4-1/2	M-S	95	80	188 S
ND 60-54	13595	61.0	32.3	16	78	6	73.5	1.64	15.4	VS	63.5	.43	14.9	N	VS	64.7	4	62.8	3	M	105 SIC	90	181 Q
ND 264	13569	57.0	23.3	6	84	10	72.8	1.88	15.0	S	61.6	.49	14.8	N	S	67.9	7	64.0	5-1/2	M	100	90	183 S
ND 321	13952	55.0	22.2	3	84	13	72.5	2.01	16.7	Q	59.3	.50	15.7	N	S-Q	67.9	7	64.0	5-1/4	M-S	100 SIC	90	183 S
ND 455	13955	57.5	22.2	3	87	10	72.7	1.72	14.9	S	61.3	.44	14.3	N	S	66.0	6	64.0	5-1/4	M	95	90	186 S-Q
ND 363	13828	59.0	27.9	18	79	3	73.8	1.85	16.4	S	62.9	.46	15.6	N	S	66.3	6	64.4	4-3/4	M-S	95	90	188 S-Q
ND 405	13779	58.0	28.5	8	88	4	73.2	1.72	16.3	S	63.1	.41	15.7	N	VS	66.3	8	64.4	7-1/4	M-S	100	80	195 S
ND 407	13953	60.0	30.3	24	73	3	74.1	1.72	15.8	S	60.2	.43	14.4	N-S	S	67.0	6	64.8	5	M-S	100	90	210 S
ND 442	13954	58.0	25.5	7	88	5	73.1	1.87	16.8	S	61.7	.46	15.9	N	S	67.9	6	64.0	4-1/4	M-S	95	90	182 S
ND 455	13955	57.5	22.2	3	87	10	72.7	1.72	14.9	S	61.3	.44	14.3	N	S	66.0	6	64.0	5-1/4	M	95	90	186 S-Q
ND 456	13956	59.5	27.0	7	88	5	73.1	1.88	16.4	S	63.3	.47	15.7	N	S	67.9	5	64.0	3-1/2	M	105 SIC	80	185 S-Q
ND 457	13957	60.5	26.8	20	77	3	73.9	1.83	16.1	S	65.4	.47	15.4	N	VS	67.0	5	64.8	3-3/4	M	95	90	167 S-Q
SD 624	13947	58.0	25.5	7	90	3	73.2	1.77	15.7	S	64.1	.46	14.6	N	S	65.7	4	63.6	3-1/2	M	100	90	181 S-Q
SD 625	13948	62.5	29.6	11	86	3	73.4	1.77	15.0	S	64.2	.50	14.2	N	S	66.3	4	64.4	3	M	110 SIC	80	168 Q-S
SD 626	13949	60.5	29.2	9	88	3	73.3	1.65	15.3	S	64.9	.51	14.2	N	S	65.3	5	63.2	3-3/4	M	105 SIC	80	180 Q-S

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Thick Wall, S2 - Close.

TABLE 18
UNIFORM REGIONAL NURSERY SAMPLES
Madison, Wisconsin

1965 CROP																			
Variety or Sel. No.	C. I. No.	T. W. 1/	1000 Kwt.	Kernels 2/	Size %	Pot. 2/	Wh. 2/	Kern. 3/	Wh. 2/	Ext. 2/	Flr. 2/	Min. @ 65%Ex. 2/	Flr. 2/	Mix. 2/	Bake 2/	Dough 2/	Crumb 2/	Loaf 2/	Bake Eval. 3/
#/Bu.	g.	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	
Chris	13751	62.5	33.9	55	44	1	75.7	1.89	15.1	S	58.9	.52	14.1	N-S	64.2	3	62.4	2-1/2	M-S
Crim	13465	63.0	37.3	74	25	1	76.7	1.81	14.9	S	56.7	.54	14.1	N-S	65.3	4	63.2	3	S-Q
Justin	13462	62.0	34.5	67	32	1	70.3	1.90	15.4	S	58.3	.48	14.7	N	64.4	5	62.4	3-1/4	M-S
Le	12488	61.0	38.8	71	28	1	76.5	1.84	14.1	S	56.3	.55	13.3	N	63.8	4	63.8	3-1/2	M-S
Manitou	13775	61.5	31.8	48	50	2	75.3	1.83	15.4	S-Q	58.9	.54	14.8	S	62.3	2	62.3	2	M
Marquis	3641	58.0	27.1	30	63	2	74.2	1.92	12.4	U	53.9	.60	11.8	N-S	58.7	2	58.7	2-3/4	M-S
Pembina	13332	61.5	32.3	53	45	2	74.6	1.85	14.8	S-Q	57.0	.56	13.4	N	62.8	5	62.8	3-3/4	M-S
Selkirk	13100	60.5	35.8	56	41	3	75.7	1.98	14.8	S	58.7	.55	14.5	N	65.7	4	63.6	2-1/2	W
Thatcher	10003	62.0	31.4	41	57	2	75.0	1.84	14.2	S	57.3	.58	13.7	N	64.7	4	62.8	3	M-S
II-54-30	13655	64.0	35.3	55	43	2	75.7	1.80	14.4	S	60.9	.47	13.5	N	62.5	4	62.5	2-3/4	M-S
II-55-11	13773	63.5	42.2	73	26	1	76.6	1.84	16.2	S	56.5	.49	14.5	N	66.6	5	64.8	3-1/4	M-S
II-58-57	13825	64.0	32.2	55	42	3	75.6	1.76	13.8	S-Q	55.3	.55	13.7	N-S	64.2	4	62.4	3-1/4	M
II-59-9	13826	62.0	39.7	77	21	2	76.8	1.78	14.2	S	56.8	.53	14.0	N	64.2	4	62.4	2-3/4	M
61-107	13937	61.5	43.5	78	20	2	76.8	1.77	14.6	S	54.4	.58	14.3	N-S	63.5	3	63.5	2-1/4	M
B60-82	13823	62.0	36.4	57	42	1	75.8	1.75	13.6	S	55.3	.57	12.8	N	62.5	3	62.5	3	M
B61-89	13946	61.0	42.0	83	16	1	77.1	1.86	15.3	VS	52.4	.53	14.1	N-S	64.2	3	64.2	2-1/2	M
B61-95	13586	63.0	35.8	61	38	1	76.0	1.78	13.6	S	55.1	.54	12.1	N-S	61.0	4	61.0	3-1/4	M
ND 60-54	13596	63.0	44.6	76	22	2	76.7	1.81	14.4	S	56.7	.57	13.9	N-Q-U	63.8	3	63.8	3	M
ND 264	13569	62.5	36.4	53	46	1	75.6	1.88	14.0	S	56.7	.55	13.0	N-Q-U	62.5	6	62.5	4-1/4	M
ND 321	13952	62.5	40.5	73	25	2	76.6	1.87	14.5	S	55.0	.56	13.0	N-S	64.4	4	64.4	3-3/4	M
ND 363	13828	63.0	38.3	74	25	1	76.7	1.89	13.9	S	60.3	.54	12.9	N	66.2	4	64.2	3	M
ND 405	13779	61.0	41.0	73	25	2	76.6	1.83	14.6	S	59.9	.54	13.7	N	63.2	4	63.2	2-1/2	M-S
ND 407	13953	63.0	40.5	77	22	1	76.8	1.81	14.3	S	56.7	.51	14.1	N	64.7	5	64.7	4-1/4	M-S
ND 442	13954	60.5	38.3	67	32	1	76.3	2.01	14.7	S	57.5	.58	14.1	N	66.6	4	66.7	2-3/4	M-S
ND 455	13955	63.0	34.7	67	32	1	76.3	1.77	13.0	S	60.5	.49	12.0	N	61.0	2	61.0	2-1/2	M
ND 456	13956	62.0	40.3	75	24	1	76.7	1.82	13.9	S	61.7	.45	12.7	N	60.7	3	60.7	2-1/2	M
ND 457	13957	62.5	35.7	75	24	1	76.7	1.83	14.6	S	63.1	.48	13.7	N	62.5	3	62.5	2-3/4	M-S
SD 624	13947	62.0	37.6	67	32	1	76.3	1.88	15.1	S	60.2	.55	14.5	N	61.9	2	61.9	1-3/4	M
SD 625	13948	62.5	33.3	44	53	3	75.1	1.84	15.1	S-Q	60.2	.52	14.5	N	65.3	3	65.3	2-1/4	M
SD 626	13949	62.0	38.6	71	27	2	76.5	1.77	14.3	S	60.4	.52	13.8	N	63.5	3	63.5	3	M

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.
5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.
7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.
8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Thick Wall, S2 - Close.

TABLE 19
UNIFORM REGIONAL NURSERY SAMPLES
Laramie, Wyoming

Variety or S. No.	C. I. No.	T. W. Kwt.	1000 Kwt.	Kernel Lg.	Size Med.	Pot. Sm.	Wht. Min.	Wht. 2/	Kern. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. Pro. Char. 2/	Mfg. Per. 4/	Mix. Abs. 5/	Mix. Abs. 5/	Bake Time 2/	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol. 8/	Bake 3/	cc.
Chris	13751	62.0	29.4	41	58	1	75.0	1.57	11.1	56.5	.55	10.4	62.5	2	62.5	1-3/4	D	90 DC	70 ST	139		
Crim	13465	60.5	33.8	66	33	1	76.3	1.64	10.6	55.8	.55	9.7	62.3	2	62.3	2	S1D	70 ST	146			
Justin	13462	60.5	32.9	68	31	1	76.4	1.64	11.3	56.0	.51	10.7	63.2	2	63.2	2-1/4	S1D	70 ST	144			
Lee	12488	61.0	32.5	57	42	1	75.8	1.67	10.2	55.8	.55	9.8	61.0	2	61.0	1-3/4	D	90	70 ST	144		
Manitou	13775	61.5	27.9	40	59	1	75.0	1.57	10.7	58.1	.54	9.9	60.3	2	60.3	1-3/4	D	90	70 ST	140		
Marquis	3641	61.0	30.6	49	50	1	75.4	1.63	9.5	54.9	.57	8.7	58.1	1	58.1	1-3/4	D	80	65 ST	133		
Pembina	13332	62.0	30.6	37	62	1	74.8	1.58	10.7	56.7	.52	10.0	60.3	3	60.3	2-1/2	S1D	90	70 ST	150		
Seekirk	13100	60.5	36.8	64	34	2	76.1	1.67	9.8	59.6	.48	9.1	59.0	1	59.0	1-1/2	D	85	60 ST	141		
Thatcher	10003	61.5	29.6	48	51	1	75.4	1.55	10.0	55.1	.56	9.1	59.0	1	59.0	1-1/2	D	90	65 ST	137		
II-54-30	13635	63.0	31.7	37	62	1	74.8	1.55	9.8	56.7	.54	8.9	58.7	1	58.7	1-1/4	D	85 DC	40 ST	142		
II-55-11	13773	62.0	36.0	53	44	3	75.5	1.59	11.5	56.3	.55	11.1	62.5	2	62.5	1-3/4	D	80 SIC	60 ST	160		
II-58-57	13825	59.0	27.3	47	52	1	75.3	1.54	9.7	50.7	.59	8.8	61.9	3	61.9	2-1/2	D	80	70 ST	143		
II-59-9	13826	58.5	37.0	73	26	1	76.6	1.56	10.6	50.9	.59	9.3	61.9	2	61.9	2	D	80	60 ST	149		
61-107	13937	61.0	37.5	68	31	1	76.4	1.53	9.9	51.6	.59	9.5	60.7	1	60.7	1-1/4	D	90 SIC	30 ST	143		
B60-82	13823	60.5	32.8	50	48	2	75.4	1.54	9.8	52.1	.59	8.9	61.0	1	61.0	1-1/4	D	80	50 ST	143		
B61-89	13946	60.5	36.5	72	27	1	76.6	1.62	10.1	51.2	.60	9.0	61.6	2	61.6	1-1/4	S1D	90 DSIC	65 ST	149		
B61-95	13586	61.0	32.3	51	48	1	75.5	1.54	10.2	50.5	.61	9.0	61.3	1	61.3	1-1/2	D	80	50 ST	136		
ND 60-54	13596	61.5	38.9	71	27	1	76.5	1.58	10.0	57.0	.53	9.2	61.0	2	61.0	1-1/2	S1D	90	70 ST	146		
ND 264	13569	62.0	34.0	57	42	1	75.8	1.51	9.7	51.9	.57	8.4	60.7	1	60.7	1-1/2	D	80	70 ST	125		
ND 321	13922	60.5	33.1	55	44	1	75.7	1.64	10.2	50.2	.56	9.2	61.0	2	61.0	2-1/4	D	80	70 ST	140		
ND 363	13828	62.0	31.2	51	48	1	75.5	1.71	11.3	57.2	.50	10.6	62.5	2	62.5	1-1/2	VW	90	70 ST	145		
ND 405	13779	58.5	36.6	65	34	1	76.2	1.58	10.7	53.0	.56	10.0	62.8	2	62.8	1-3/4	D	70 DG	50 ST	156		
ND 407	13953	59.5	32.2	60	39	1	76.0	1.58	10.0	51.4	.58	9.1	61.3	4	61.3	3-1/2	D	80 DG	60 ST	140		
ND 442	13924	61.0	34.4	66	33	1	76.3	1.67	12.2	55.8	.52	11.9	66.3	3	64.4	2	VW	90	70 ST	157		
ND 455	13995	61.0	32.3	49	50	1	75.4	1.49	9.6	55.1	.50	8.6	60.7	2	60.7	1-1/2	D	80	60 ST	133		
ND 456	13956	62.0	34.8	65	34	1	76.2	1.58	10.3	57.9	.47	9.4	61.9	2	61.9	1-1/2	S1D	90	70 ST	143		
ND 457	13957	62.0	31.4	62	36	2	76.0	1.59	10.2	56.0	.55	9.1	61.6	2	61.6	1-1/4	D	90	60 ST	133		
SD 624	13947	61.5	34.4	53	46	1	75.6	1.62	10.3	57.4	.52	9.7	59.3	1	59.3	1-1/4	D	80	50 ST	138		
SD 625	13948	63.5	32.4	39	60	1	74.9	1.60	10.8	59.0	.50	10.3	61.9	2	61.9	1-1/4	VW	95 C	60 ST	149		
SD 626	13949	62.5	29.8	38	61	1	74.9	1.64	10.7	57.6	.52	10.0	61.9	3	61.9	2-3/4	VW	95	70 ST	152		

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 20
UNIFORM REGIONAL NURSERY SAMPLES
Sheridan, Wyoming

Variety or Sel. No.	C. I. No.	T. W. 1/	1000 Kwt.	Kernel Size Ig. Med. Sm.	Pot. Yld.	Wht. Min. 2/	Wht. Pro. 2/	Kern. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. Pro. 2/	Mlg. Char. 4/	Mlg. Per. 3/	Mix. Abs. 5/	Mix. Pat. 5/	Bake Time 2/	Dough Abs. 2/	Dough Char. 6/	Crumb Color 7/	Crumb Grain Vol. 8/	Loaf Grain Vol. 8/	Bake Eval. 3/		
Chris	13751	61.0	26.5	4	94	2	73.1	1.36	16.3	S	63.7	.47	15.9	N	65.3	3	63.2	2	110	90	182	S		
Crim	13465	60.0	27.7	18	80	2	73.8	1.29	16.1	S	60.9	.40	14.8	N	66.0	4	64.0	2	100	90	178	S		
Justin	13462	60.5	28.4	12	86	2	73.5	1.40	16.4	S	62.3	.38	16.1	N	66.3	2	64.4	2	105	SIC	85	I		
Lee	12488	60.0	28.8	13	86	1	73.6	1.34	16.2	S	58.8	.42	14.8	N-S	62.3	2	62.3	1	110	90	179	S		
Manitou	13775	60.0	29.8	3	94	3	73.0	1.29	15.6	S	62.6	.42	14.5	N	62.5	2	62.5	2	105	SIC	80	U		
Marquis	3641	61.5	26.0	7	91	2	73.3	1.37	15.6	S	59.7	.39	14.4	N	63.2	2	63.2	2	100	80	186	S		
Pembina	13332	60.0	27.7	9	90	1	73.4	1.21	15.6	S	61.9	.36	14.8	N	63.2	4	63.2	4	110	90	190	S		
Selkirk	13100	60.0	29.3	9	89	2	73.4	1.31	15.5	S	65.1	.34	14.8	N	63.2	2	63.2	2	105	90	172	S		
Thatcher	10003	60.0	24.5	3	94	3	73.0	1.31	15.6	Q-S	60.5	.37	15.3	N	61.9	2	61.9	1	100	80	176	U		
II-54-30	13655	62.5	29.1	3	96	1	73.1	1.22	15.9	S	62.4	.33	15.1	N	62.5	2	62.5	2	110	SIC	80	187	S-Q	
II-55-11	13773	61.0	33.1	23	74	3	74.0	1.41	16.4	S	61.9	.39	15.8	N	64.2	3	62.8	2	110	80	201	S		
II-58-57	13825	61.5	25.3	5	94	1	73.2	1.33	16.2	S	55.1	.38	14.8	N-S	62.8	3	61.6	1	110	90	182	U		
II-59-9	13826	59.5	33.0	38	61	1	74.9	1.29	16.3	S	61.1	.37	15.3	S	65.3	4	63.2	3	63.2	3	80	S		
61-107	13937	60.0	33.6	31	68	1	74.5	1.17	16.4	S	59.3	.33	15.7	N-S	64.2	3	62.8	2	110	80	192	S-Q		
B60-82	13823	61.5	28.6	6	93	1	73.3	1.25	15.8	S	59.8	.36	14.9	N	62.5	2	61.6	1	110	SIC	80	192	U	
B61-89	13946	62.0	30.3	31	68	1	74.5	1.34	16.1	S	57.7	.38	14.8	N	65.7	3	63.6	2	110	SIC	85	0	185	S
B61-95	13586	62.0	22.6	4	95	1	73.2	1.25	16.2	S-Q	58.7	.37	15.3	N	62.5	2	62.5	2	110	SIC	80	0	200	Q-S
ND 60-54	13596	60.5	30.0	28	70	2	74.3	1.30	15.1	S	62.3	.35	14.3	N	62.8	2	61.6	2	105	SIC	90	0	187	Q-S
ND 264	13569	61.0	30.3	9	88	3	73.3	1.37	16.9	S	58.5	.38	15.0	N	63.2	3	62.0	1	105	SIC	90	0	185	U
ND 321	13952	61.0	29.4	9	90	1	73.4	1.31	16.2	S	54.6	.36	14.3	S	63.2	2	62.0	2	105	SIC	80	0	185	U
ND 363	13828	60.5	30.3	18	81	1	73.9	1.30	16.0	S	60.6	.34	14.8	N	64.2	3	62.8	2	110	SIC	85	0	185	S
ND 405	13779	59.0	52.2	17	82	1	73.8	1.39	17.0	S	59.7	.34	15.8	N	65.3	3	63.2	2	110	SIC	80	0	204	S
ND 407	13953	61.5	29.3	7	92	1	73.3	1.39	17.4	S	56.3	.36	16.1	N-S	65.3	3	63.2	2	100	W	100	0	183	Q
ND 442	13954	61.0	29.6	9	90	1	73.4	1.42	17.4	S	58.9	.34	16.2	N-S	66.0	3	64.0	2	105	SIC	80	0	184	S
ND 455	13955	61.5	28.7	5	94	1	73.2	1.29	16.6	S	56.9	.35	14.8	N	62.8	2	61.6	1	110	SIC	80	0	184	U
ND 456	13956	61.5	30.7	9	90	1	73.4	1.46	16.5	S	60.5	.30	15.0	N	64.2	3	62.8	2	110	SIC	80	0	194	Q
ND 457	13957	60.5	27.0	5	93	2	73.2	1.45	16.7	S	60.6	.33	15.6	N	65.0	3	63.2	2	100	SIC	100	0	204	S
SD 624	13947	59.0	29.8	9	90	1	73.4	1.29	16.0	S	61.4	.36	15.1	N	64.7	2	62.8	1	100	W	100	0	175	S
SD 625	13948	61.0	28.9	2	97	1	73.1	1.11	16.3	S	63.6	.34	15.4	N	65.0	3	63.2	2	105	SIC	80	0	190	U
SD 626	13949	60.0	30.9	11	87	2	73.5	1.43	16.6	S	60.2	.38	14.4	N-S	64.7	2	62.8	2	110	SIC	80	0	169	U
1/	Clean dry - subtract 1#/bu. for dockage free T.W.																							
2/	14% moisture basis.																							
3/	S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.																							
4/	N - Normal, H - Hard, S - Soft.																							
5/	Refer to reference mixogram for numerical curve pattern.																							
6/	B - Bucky, S - Strong, M - Mallow, W - Weak, D - Dead, V - Very.																							
7/	C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.																							
8/	O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.																							

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mallow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 21
UNIFORM REGIONAL NURSERY SAMPLE AVERAGES

1965 CROP

Variety or Sel. No.	C.I. No.	T.W. Kwt.	1000 Lg.	Kernel Size	Pot. Min. Yld.	Wh. Pro.	Kern. Char.	Fir. Ext.	Min. 65% Ex.	Flr. Pro.	Mig. Char. Per.	Mix. Abs. Pat.	Bake Abs. Pat.	Dough Abs. Pat.	Crumb Abs. Pat.	Loaf Grain Vol.	Bake Gen. Eval.	Gen. Eval.	
					2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	2/	
Chris	13751	61.5	30.2	22	75	3	74.0	1.68	15.4	S	62.2	.47	14.9	N	S	63.8	3	63.4 2-1/2	M-S
Crim	13465	60.6	29.9	34	63	3	74.6	1.71	14.5	S	61.1	.48	13.9	N	S	64.5	6	63.8 5-1/4	M-S
Justin	13462	60.4	29.8	29	68	3	74.3	1.79	15.8	S	61.6	.44	15.1	N	S	64.1	5	64.1 4-1/2	M-S
Lee	12488	58.8	27.4	17	76	7	73.5	1.75	14.2	Q	58.8	.50	13.7	N	S	62.0	5	62.1 4-3/4	M-S
Manitou	13775	60.4	27.1	17	80	3	73.7	1.71	15.6	S-Q	61.3	.49	14.7	N	Q	62.1	3	62.2 3-1/4	M
Marquis	3641	57.2	22.8	8	79	13	72.8	1.85	13.8	U	57.3	.53	13.1	N-S	U	60.4	3	60.4 3-3/4	M
Pembina	13332	59.3	26.9	17	79	4	73.7	1.74	14.5	S-Q	59.9	.49	13.9	N	Q	61.4	7	61.3 5-1/2	M-S
Salkirk	13100	58.3	29.6	20	76	4	73.8	1.80	14.7	S	60.5	.48	14.1	S	S	62.9	4	62.6 3-1/2	M
Thatcher	10003	59.0	23.1	7	85	8	73.0	1.76	14.4	Q-U	60.5	.51	13.8	N	Q-U	61.2	4	61.1 3-3/4	M
II-54-30	13655	63.1	30.6	20	77	3	73.9	1.63	14.5	S	63.2	.41	13.7	N	VS	61.9	4	61.9 3-1/4	M
II-55-11	13773	62.6	35.8	48	50	2	75.3	1.71	15.1	VS	61.4	.45	14.4	N	S	63.7	5	63.2 4	M
II-58-57	13825	59.8	24.7	14	79	7	73.4	1.72	14.9	S-Q	57.4	.49	14.2	N-S	Q-U	64.2	5	64.2 4	M
II-59-9	13826	59.8	33.5	46	51	3	75.1	1.65	14.7	S	60.6	.47	14.0	N	S	63.9	5	63.9 5-1/2	M-S
61-107	13937	61.2	36.1	45	53	2	75.2	1.63	15.0	VS	59.0	.48	14.6	N-S	Q	63.1	3	63.3 3-3/4	M
BD-82	13823	61.1	28.1	17	79	4	73.7	1.67	14.6	S	59.3	.49	14.1	N	Q	62.7	4	62.7 4	M
BD-89	13946	60.0	33.2	50	48	2	75.4	1.80	15.0	S	58.7	.51	14.3	N-S	Q-U	65.0	4	65.0 4	M-S
BD-95	13386	61.7	30.0	23	74	3	74.0	1.66	14.6	S	58.1	.45	13.9	N-S	S	61.9	5	61.9 4-1/2	M
ND 60-54	13396	61.5	35.6	35	63	2	74.7	1.67	14.6	S	60.9	.46	14.0	N	S	62.5	3	62.5 3-1/2	M-S
ND 264	13369	60.0	29.6	25	71	4	74.1	1.77	15.2	S	59.5	.49	14.1	N	Q	64.3	5	64.3 4-1/4	M-W
ND 321	13952	59.4	29.8	22	73	5	73.9	1.79	15.1	S	58.3	.47	14.1	N-S	Q	64.0	5	64.0 4-1/2	M
ND 363	13828	60.7	32.0	41	57	2	75.0	1.78	15.2	S	61.1	.46	14.4	N	S	64.0	5	64.0 4	M-S
ND 405	13779	59.5	33.8	39	59	2	74.9	1.73	15.6	S	60.9	.44	14.8	N	S	64.3	5	64.3 4-1/2	M
ND 407	13953	61.2	33.1	40	58	2	74.9	1.72	15.2	S	58.0	.45	14.5	N-S	Q	64.8	6	64.8 4-3/4	M-S
ND 442	13954	60.9	32.1	36	62	2	74.8	1.81	16.1	S	59.3	.48	15.5	N	S	66.6	5	66.6 3-3/4	N
ND 455	13955	60.8	28.8	26	70	4	74.1	1.70	14.5	S	59.9	.44	13.7	N	S	63.1	4	63.1 4-1/4	M
ND 456	13356	61.2	32.4	34	64	2	74.6	1.74	14.9	S	61.6	.41	13.9	N	S	63.2	4	63.2 3-3/4	W
ND 457	13957	61.3	29.8	35	62	3	74.6	1.77	15.2	S	62.7	.43	14.4	N	S	63.8	4	63.8 4	M
SD 624	13947	60.5	32.1	34	64	2	74.6	1.73	15.1	S	61.3	.47	14.4	N	S	63.5	2	63.5 3-1/2	VW
SD 625	13948	62.1	31.7	22	76	2	74.0	1.70	15.1	S	61.9	.45	14.7	N	S	64.4	3	64.4 2-3/4	VW
SD 626	13949	61.0	32.5	33	64	3	74.5	1.68	14.8	S	61.1	.47	13.8	N	S	62.9	3	62.9 3	VW

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Buckle, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

C - Creamy, G - Gray, D - Dull, S1 - Slightly V - Very, B - Bright, W - White.

7/ 0 - Open, 1 - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

8/ 0 - Open, 1 - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kg.	Kg./Bu.	Size Lg. Med. Sm.	Put. % %	Wht. Min. 2/ %	Wht. Pro. 2/ %	Fir. Ext. 65%Ex. 2/ %	Fir. Pro. 2/ %	Mix. Abs. 2/ %	Mix. Abs. 3/ %	Bake Time. 2/ min.	Mix. Time. 4/ min.	Dough Char. 4/ %	Crumb Color	Crumb Grain	Loaf Vol.	cc.	
Chris	13751	62.8	31.4	51	47	2	75.5	1.68	15.2	15.2	65.0	4	63.4	2-1/2	M	113	90	178		
Crim	13465	60.3	30.4	42	55	3	75.0	1.73	13.7	62.6	65.0	6	63.4	5-3/4	M	108	85	175		
Justin	13462	60.5	29.7	39	57	4	74.8	1.83	15.4	62.5	65.3	5	63.7	4-1/2	M-S	98	93	169		
Selkirk	13100	59.0	29.9	30	65	5	74.3	1.86	14.3	61.8	61.9	4	61.9	3-1/2	M-W	103	95	171		
<u>MINNESOTA STATIONS</u>																				
Chris	13751	60.2	25.6	7	88	5	73.1	1.68	15.5	62.5	4.9	15.2	63.7	4	63.7	3	M	105	92	170
Crim	13465	60.3	30.1	26	71	3	74.2	1.65	14.9	62.0	4.4	14.5	65.4	6	64.7	5-1/2	M	90	80	166
Justin	13462	60.2	30.2	24	72	4	74.0	1.74	16.0	62.3	4.3	15.4	65.2	5	64.0	3-3/4	M	102	93	166
Selkirk	13100	58.5	30.5	10	86	4	73.3	1.68	14.8	62.5	4.9	14.2	62.0	4	61.5	3-3/4	M	107	87	172
<u>MONTANA STATIONS</u>																				
Chris	13751	61.8	27.5	19	80	1	73.9	1.70	15.0	62.0	4.5	14.2	62.8	3	62.2	3-1/4	M	105	86	171
Crim	13465	61.4	30.8	45	54	1	75.2	1.74	13.7	61.1	4.6	13.2	62.4	6	61.0	4-3/4	M	109	93	170
Justin	13462	60.8	30.2	32	67	1	74.5	1.82	15.4	62.4	4.4	14.4	63.9	6	62.9	4-1/2	M-S	103	80	175
Selkirk	13100	58.9	30.5	25	73	2	74.2	1.85	14.0	61.8	4.7	13.2	61.8	4	61.8	3-1/2	W	105	90	160
<u>NORTH DAKOTA STATIONS</u>																				
Chris	13751	61.5	25.7	16	82	2	73.7	1.74	16.1	62.0	.52	15.8	64.1	4	63.1	3	M	110	85	187
Crim	13465	58.8	24.8	8	88	4	73.2	1.90	15.5	60.6	.55	14.6	65.7	7	64.7	7	M	100	93	184
Justin	13462	59.3	27.2	12	84	4	73.4	1.93	16.5	61.1	.49	15.7	65.2	6	64.2	4-1/2	M-S	103	90	190
Selkirk	13100	54.3	23.5	3	87	10	72.7	1.98	16.1	60.9	.54	15.6	65.9	5	64.1	3-1/2	M-S	100	90	184
<u>SOUTH DAKOTA STATIONS</u>																				
Chris	13751	61.5	25.7	16	82	2	73.7	1.74	16.1	62.0	.52	15.8	64.1	4	63.1	3	M	110	85	187
Crim	13465	58.8	24.8	8	88	4	73.2	1.90	15.5	60.6	.55	14.6	65.7	7	64.7	7	M	100	93	184
Justin	13462	59.3	27.2	12	84	4	73.4	1.93	16.5	61.1	.49	15.7	65.2	6	64.2	4-1/2	M-S	103	90	190
Selkirk	13100	54.3	23.5	3	87	10	72.7	1.98	16.1	60.9	.54	15.6	65.9	5	64.1	3-1/2	M-S	100	90	184
<u>WISCONSIN STATION</u>																				
Chris	13751	62.5	33.9	55	44	1	75.7	1.89	15.1	58.9	.52	14.1	64.2	3	62.4	2-1/2	M-S	105	80	170
Crim	13465	63.0	37.3	74	25	1	76.7	1.81	14.9	56.7	.54	14.1	65.3	4	63.2	3	M	100	80	168
Justin	13462	62.0	34.5	67	32	1	76.3	1.90	15.4	58.3	.48	14.7	64.4	5	62.4	3-1/4	M-S	105	90	181
Selkirk	13100	60.5	35.8	56	41	3	75.7	1.98	14.8	58.7	.55	14.5	65.7	4	63.6	2-1/2	W	100	95	177
<u>WYOMING STATIONS</u>																				
Chris	13751	61.0	26.5	4	94	2	73.1	1.36	16.3	63.7	.47	15.9	65.3	3	63.2	2	M	110	90	182
Crim	13465	60.0	27.7	18	80	2	73.8	1.29	16.1	60.9	.40	14.8	66.0	4	64.0	2-3/4	M	100	90	178
Justin	13462	60.5	28.4	12	86	2	73.5	1.40	16.4	62.3	.38	16.1	66.3	4	64.4	2-1/2	M	105	85	179
Selkirk	13100	60.0	29.3	9	89	2	73.4	1.31	15.5	65.1	.34	14.8	63.2	2	63.2	2-1/4	M	105	90	172
<u>STATE AVERAGES OF THE FOUR VARIETIES</u>																				
Minnesota	60.7	30.4	41	56	3	74.9	1.78	14.7	62.6	.46	14.1	64.3	5	63.1	4	M	106	91	173	
Montana	59.8	29.7	17	79	4	73.7	1.69	15.3	62.3	.47	14.8	64.1	5	63.3	4	M	105	91	169	
North Dakota	60.7	29.8	30	69	1	74.5	1.78	14.5	61.8	.46	13.8	62.7	5	62.0	4	M	106	87	169	
South Dakota	58.5	25.3	10	85	5	73.3	1.89	16.1	61.2	.53	15.4	65.2	6	64.0	4-1/2	M-S	103	90	186	
Wisconsin	62.0	35.4	63	36	1	76.1	1.90	15.1	58.2	.52	14.4	64.9	4	62.9	2-3/4	M	103	86	174	
Wyoming	60.4	28.0	11	87	2	73.5	1.34	16.1	63.0	.40	15.4	65.2	3	63.7	2-1/2	M	105	89	178	
1965 Average <u>5/</u>	60.4	29.7	29	69	2	74.3	1.73	15.3	61.5	.47	14.7	64.4	5	63.2	3-3/4	M	105	89	175	
1964 Average <u>5/</u>	58.8	28.2	22	73	5	73.8	1.82	16.1	61.1	.49	15.4	64.0	4	64.0	3-1/2	M-S	107	88	180	

^{1/} Clean dry - subtract 1#/bu. for dockage free T.W.

^{2/} 14% moisture basis

^{3/} Refer to reference mixogram for numerical curve pattern.

^{4/} B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead.

^{5/} Averages obtained by using data for Minnesota, Montana, North Dakota, South Dakota, Wisconsin and Wyoming.

TABLE 23
SAWFLY YIELD NURSERY
Outbank, Montana

1965 CROP																		
Variety or Sel. No.	C.I. No.	T.W. 1/	1000 Kwt.	Kernel Lg.	Size Med.	Pot. Yld.	Wht. Pro.	Kern. Char.	Flr. Ext.	Min. @ 65% Ex.	Flr. Pro.	Mig. Char.	Mix. Abs. Pat.	Bake Abs. Time	Dough Char.	Crumb Grain 8/ 2/ 2/	Leaf Vol.	Bake Eval. 3/ c.c.
#/Bu.	g.	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	min.	
Chinook	13320	61.5	31.4	25	73	2	74.2	1.68	16.1	S	60.6	.44	14.9	N	S	65.0	4	64.0 2-1/2
Cypress	13344	60.5	24.6	0	95	5	72.8	1.75	15.7	S	59.8	.46	15.5	N-S	S	64.7	7	M-S 5-1/2
Rescue	12435	57.5	22.5	0	91	9	72.6	1.82	16.2	S	61.9	.48	16.0	N	S	66.6	6	64.8 4-3/4
Sawtana	13304	56.5	22.5	0	90	10	72.5	1.89	16.5	S	56.0	.54	16.2	N-S	S	67.9	7	64.0 4-1/4
Thatcher	10003	58.0	22.4	3	91	6	72.9	1.74	16.1	S	61.1	.50	15.8	N	S	64.7	4	64.7 2-3/4
60-54	13596	60.5	33.2	16	83	1	73.8	1.67	15.3	S	61.6	.46	15.2	N	S	64.2	5	M-S 3-3/4
61-107	13937	60.0	31.2	26	72	2	74.2	1.68	16.3	S	59.7	.47	16.2	N	S	65.7	4	64.0 2-1/2
62-133	60.0	30.3	20	79	1	74.0	1.83	16.1	S	60.2	.46	15.8	N	S	65.0	4	64.0 3-1/2	
63-114	59.5	36.9	48	51	1	75.4	1.80	15.9	VS	57.7	.46	15.7	N	S-Q	66.3	3	64.4 2	
B6-23	13832	58.5	28.8	1	98	1	73.0	1.81	17.2	S	60.0	.49	17.1	N	S	67.0	6	65.2 3-1/2
B61-69	13831	59.0	25.6	0	95	5	72.8	1.82	15.5	S	60.9	.47	15.4	N	S	65.3	9	M-S 6-1/4
B64-1	13950	56.5	22.0	0	89	11	72.5	1.91	14.9	S-Q	59.5	.48	14.2	N	S	64.2	6	64.2 4-1/2
B64-23	13951	54.5	22.6	0	88	12	72.4	1.96	16.1	S-Q	58.1	.56	15.8	N	U	65.7	6	64.0 4-1/2
L7167-112	61.5	27.5	7	91	2	73.3	1.79	15.7	S	59.3	.45	15.2	N	S	64.4	4	64.4 2-1/2	
L7167-194	61.0	28.1	1	94	5	72.8	1.83	15.9	S	60.6	.47	15.6	N	S	64.2	5	64.2 3-1/2	
SC 7531-2	60.0	26.2	10	87	3	73.4	1.79	16.1	S	61.6	.47	15.4	N	S	66.0	5	64.0 3-1/4	

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

3/ N - Normal, H - Hard, S - Soft.

4/ Refer to reference mixograms for numerical curve pattern.

5/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

6/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

7/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

8/ 0 - Open, 1 - Irregular, S - Soggy, T - Thick Wall, S1 - Slightly, C - Close.

TABLE 25
SAWFLY YIELD NURSERY
Sidney, Montana

Variety or Sei. No.	C. I. No.	T. W. 1/	1000 Kwt.	Kernel Size Lg. Med. Sm.	Pot. Yld.	Wht. Min. 2/	Kern. Pro. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ex. 2/	Flr. Pro. 2/	Mlg. Char. Per. 4/	Mix. Abs. 5/	Mix. Abs. 5/	Bake Time 2/	Dough Char. 6/	Crumb Color 7/	Crumb Grain Vol. 8/	Bake Eval. 3/	cc.
Chinook	13320	56.5	19.9	0	75	25	71.8	1.86	13.8	S	59.3	.48	13.5	N	S	59.7	4	105.90	171. Q
Cypress	13344	57.0	17.5	0	60	40	71.0	1.93	14.8	Q	59.3	.45	14.7	N	S	62.5	5	62.5. 4-1/2	110. S1C 80. 185. S-Q
Rescue	12435	57.5	18.7	0	82	18	72.1	2.18	15.2	S	62.2	.54	14.8	N	S-Q	63.2	5	63.2. 5	105. C 95. 186. S
Saxtona	13304	57.5	19.7	0	81	19	72.1	2.00	14.8	S	60.0	.51	14.4	N-S	S-Q	62.3	4	62.3. 4	100. M-S 100. 189. S
Thatcher	10003	58.0	20.0	1	85	14	72.4	1.84	13.1	S	61.9	.54	12.9	N	S-Q	57.2	4	57.2. 3-3/4	100. S1C 95. 170. Q
60-54	13596	61.5	31.2	17	80	3	73.7	1.70	14.4	VS	64.8	.44	14.3	N	VS	61.9	4	61.9. 3	100. 95. 173. S-Q
6-107	13937	60.5	30.7	19	78	3	73.8	1.64	14.9	S	61.4	.47	14.7	N	S	60.3	4	58.3. 3-3/4	110. S1C 90. 180. U
62-133	61.0	29.8	18	79	3	73.8	1.68	15.8	VS	61.9	.49	15.6	N	S	60.3	5	58.3. 3-3/4	115. 90. 181. Q-U	
63-114	59.5	31.0	24	73	3	74.1	1.68	15.7	S	60.2	.43	14.4	N	VS	63.5	4	61.6. 3-1/4	110. S1C 90. 171. S	
B61-23	13832	61.0	28.0	3	94	3	73.0	1.88	15.5	S	60.7	.48	15.3	S	S	62.3	4	60.3. 3-3/4	105. 90. 185. S-Q
B61-69	13831	60.0	21.9	0	85	15	72.3	2.06	14.9	S	62.2	.48	14.8	N	S	61.0	5	59.0. 4-3/4	105. C 80. 0 186. S-Q
B64-1	13950	51.0	13.9	0	28	72	69.4	2.18	14.6	U	54.3	.59	13.9	N-S	U	59.0	3	59.0. 3-1/2	105. C 80. S1C 155. U
B64-23	13951	52.5	17.2	0	53	47	70.7	2.08	14.0	U-Q	56.2	.59	13.9	N-S	U	60.3	5	58.3. 3-3/4	105. C 90. I 175. Q-U
L 7167-112	58.5	18.8	0	77	23	71.9	1.88	14.4	S	57.7	.51	14.1	N	S-Q	58.7	7	58.7. 4-3/4	105. S1C 90. 165. U-Q	
L 7167-194	53.5	15.2	0	59	41	71.0	1.94	14.2	S	56.0	.61	13.6	N-S	U	58.1	6	58.1. 4-1/2	95. S1C 80. I 155. U	
SC 7551-2	56.5	19.0	0	71	29	71.6	1.93	14.9	S	58.4	.46	14.6	N	Q	61.9	4	60.3. 3-1/2	100. C 90. 162. Q	

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.

3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

5/ Refer to reference mixogram for numerical curve pattern.

6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

TABLE 26
MONTANA SANFLY YIELD NURSERY AVERAGES

Variety or Ser. No.	C. I. No.	T.W. Kwt. 1/	1000 Kwt. L/	Kernel Lg. Med. Sm. 2/	Size Yld. 2/	Pot. Yld. 2/	Wht. Min. 2/	Kern. Pro. Char. 3/	Flr. Ext. 2/	Min. @ 65% Ex. Ext. 2/	Flr. Pro. Char. 4/	Mig. Per. 5/	Mix. Abs. Pat. 2/	Mix. Abs. Pat. 5/	Bake Time 2/	Dough Char. 6/	Crumb Color 7/	Crumb Grain 8/	Loaf Vol. 9/	Bake Gen. Eval. 10/	Bake Gen. Eval. 11/	
Chinook	13320	59.2	28.4	23	68	9	73.7	14.2	S	60.3	.44	13.2	N	S	62.2	3	61.9	2-3/4	M-W	105	83	S-Q
Cypress	13344	59.0	24.3	6	78	15	72.6	14.2	S-Q	59.9	.44	13.5	N	S	62.8	5	62.8	4-1/4	M	107	85	S
Rescue	12435	58.0	23.9	10	81	9	73.1	1.85	S	61.9	.47	13.6	N	S	62.9	5	62.3	4-1/4	M	108	83	S
Santana	13304	57.5	24.3	6	84	10	72.8	1.82	S	58.6	.49	14.1	N-S	S-Q	63.0	5	61.7	3-3/4	M	103	88	S-Q
Thatcher	10003	58.2	24.3	9	84	7	73.2	1.72	S	61.6	.49	13.2	N	S-Q	60.1	4	60.1	3	M	100	92	S-Q
60-54	13596	60.5	34.9	32	67	1	74.6	1.64	S	63.4	.44	13.7	N	S	61.6	4	61.6	3-1/4	M	103	92	172
61-107	13937	59.7	34.5	38	61	1	74.8	1.61	S	60.4	.45	13.4	N	S	62.1	4	60.8	3	W-M	102	85	179
62-133	60.3	32.2	32	67	1	74.6	1.71	S	60.9	.46	14.4	N	S	61.4	4	60.4	3-1/2	M-W	107	83	178	
63-114	59.2	35.8	49	50	1	75.4	1.68	S	59.0	.44	13.8	N	S	64.0	3	62.8	2-1/2	M	107	87	172	
B61-23	13832	59.0	31.4	16	82	2	73.7	1.77	S	59.7	.46	14.6	N	S	63.7	4	62.5	3-1/4	M	102	90	181
B61-69	13831	59.7	27.5	13	80	7	73.3	1.81	S	62.0	.45	14.1	N	S	62.1	6	61.0	5	M-S	107	80	184
B64-1	13950	55.7	22.2	10	62	28	72.1	1.88	Q-U	58.2	.48	12.7	N-S	Q	59.7	4	59.7	3-1/2	W-M	102	78	150
B64-23	13951	55.3	24.9	15	65	20	72.8	1.88	U-Q	59.2	.53	13.7	N-S	U	60.3	5	60.3	3-3/4	M	105	87	170
L 7167-112		59.8	25.2	11	80	9	73.2	1.74	S	59.4	.45	13.3	N	S	61.1	5	61.1	3	M	103	82	169
L 7167-194		58.0	27.6	8	76	16	72.7	1.79	S-Q	59.2	.49	13.5	N	S-Q	60.9	4	60.9	4	M-W	97	80	164
SC 7531-2		58.3	25.6	21	68	11	73.5	1.78	S	60.9	.43	13.7	N	S	63.0	4	61.8	3-1/4	M	103	90	S-Q

1/ Clean dry - subtract 1#/bu. for dockage free T.W.

2/ 14% moisture basis.
3/ S - Satisfactory, Q - Questionable, U - Unsatisfactory, V - Very.

4/ N - Normal, H - Hard, S - Soft.

5/ Refer to reference mixogram for numerical curve pattern.

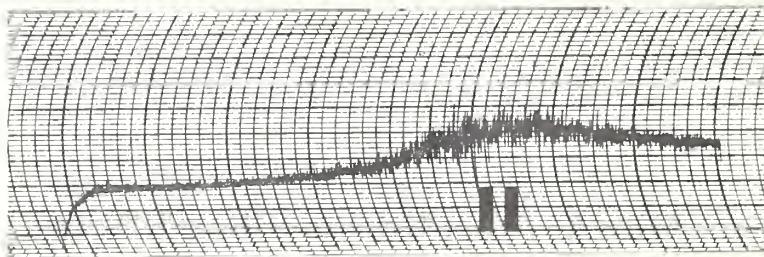
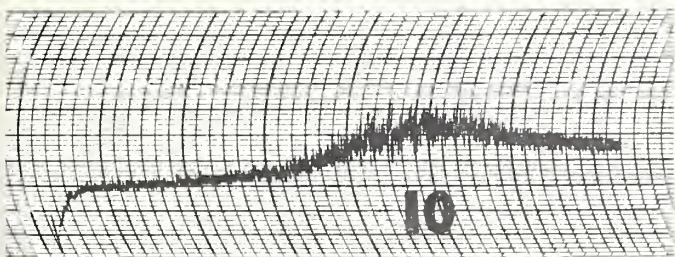
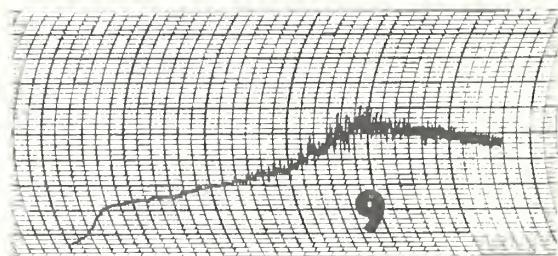
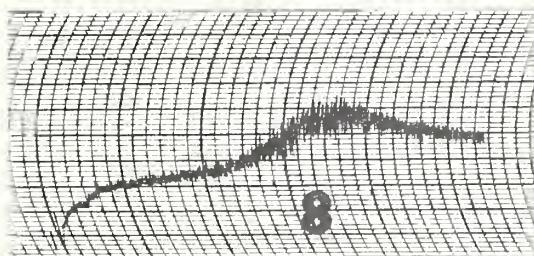
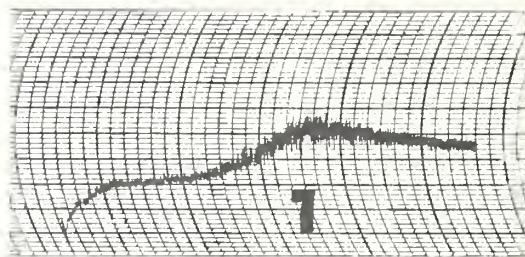
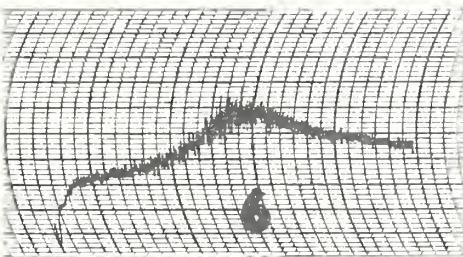
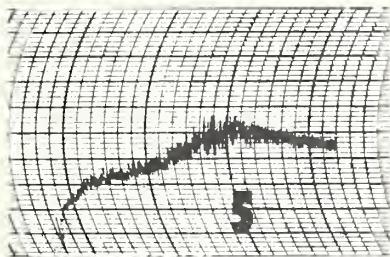
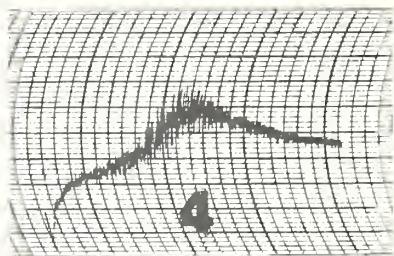
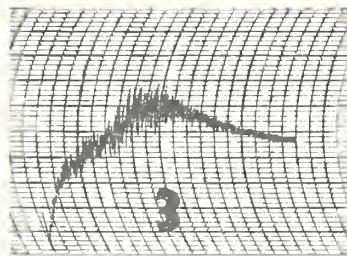
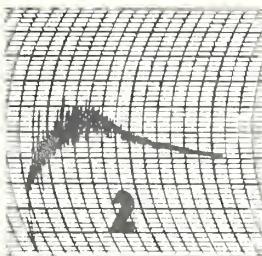
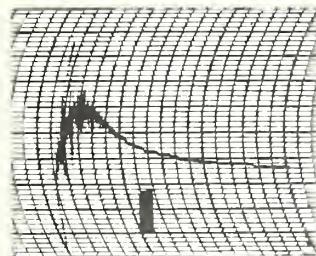
6/ B - Bucky, S - Strong, M - Mellow, W - Weak, D - Dead, V - Very.

7/ C - Creamy, G - Gray, D - Dull, S1 - Slightly, V - Very, B - Bright, W - White.

8/ O - Open, I - Irregular, S - Soggy, T - Thick Wall, SI - Slightly, C - Close.

REFERENCE MIXOGRAMS

HARD RED SPRING WHEAT



U.S.D.A. SPRING WHEAT QUALITY LABORATORY

FARGO, NORTH DAKOTA

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